



ASTROJET

2600P/2650P/2800P

PRINTER

SERVICE

MANUAL

Astro Machine Corp.
630 Lively Blvd.
Elk Grove Village, IL 60007
Phone: (847) 364-6363
Fax: (847) 364-9898
www.astromachine.com

SAFETY PRECAUTIONS

THIS EQUIPMENT PRESENTS NO PROBLEM WHEN USED PROPERLY. HOWEVER, CERTAIN SAFETY RULES SHOULD BE OBSERVED WHEN OPERATING THE ASTROJET 2600P/2650P/2800P PRINTER.

BEFORE USING THE PRINTER, YOU SHOULD READ THIS MANUAL CAREFULLY AND FOLLOW THE RECOMMENDED PROCEDURES, SAFETY WARNINGS, AND INSTRUCTIONS:

- ✓ Keep hands, hair, and clothing clear of rollers and other moving parts.
- ✓ Avoid touching moving parts or materials while the machine is in use. Before clearing a jam, be sure machine mechanisms come to a stop.
- ✓ Always turn off the machine before making adjustments, cleaning the machine, or performing any maintenance covered in this manual.
- ✓ Use the power cord supplied with the machine and plug it into a properly grounded wall outlet located near the machine and easily accessible. Failure to properly ground the machine can result in severe personal injury and/or fire.
- ✓ The power cord and wall plug is the primary means of disconnecting the machine for the power supply.
- ✓ DO NOT use an adapter plug on the line cord or wall outlet.
- ✓ DO NOT remove the ground pin from the line cord.
- ✓ DO NOT route the power cord over sharp edges or trapped between furniture.
- ✓ Avoid using wall outlets that are controlled by wall switches, or shared with other equipment.
- ✓ Make sure there is no strain on the power cord caused by jamming between the equipment, walls or furniture.
- ✓ DO NOT remove covers. Covers enclose hazardous parts that should only be accessed by a qualified service representative. Report any damage of covers to your service representative.
- ✓ This machine requires periodic maintenance. Contact your authorized service representative for required service schedules.
- ✓ To prevent overheating, do not cover the vent openings.
- ✓ Use this equipment only for its intended purpose.

In addition, follow any specific occupational safety and health standards for your workplace or area.

This manual is intended solely for the use and information of Astro Machine Corp., its designated agents, customers, and their employees. The information in this guide was obtained from several different sources that are deemed reliable by all industry standards. To the best of our knowledge, that information is accurate in all respects. However, neither Astro Machine Corp. nor any of its agents or employees shall be responsible for any inaccuracies contained herein.

AstroJet™ is a registered trademark of Astro Machine Corp.

Hewlett-Packard is a registered trademark of Hewlett-Packard Corporation.

Windows 95 and Windows 98 are registered trademarks of Microsoft Corporation.

IBM is a registered trademark of International Business Machines.

All other trademarks are the property of their respective holders.

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher

Table of Contents

SECTION 1 – Installation	1
<i>Unpacking the AstroJet 2600P/2650P/2800P</i>	<i>1</i>
<i>Attach the Side Guides to the Printer</i>	<i>1</i>
<i>Choose a Location</i>	<i>1</i>
<i>Connecting the AstroJet 2600P/2650P/2800P</i>	<i>1</i>
<i>Installing the Ink Cartridges</i>	<i>2</i>
<i>Setting up the Feed</i>	<i>3</i>
<i>Installing the Printer Driver</i>	<i>3</i>
<i>Installing the BIOS Manager</i>	<i>4</i>
SECTION 2 – Trouble Shooting	7
<i>Power Problems</i>	<i>7</i>
<i>Interface Communication Problems</i>	<i>7</i>
<i>LCD Display Problems</i>	<i>8</i>
<i>Feeding Problems</i>	<i>8</i>
<i>Printing Problems</i>	<i>9</i>
<i>Print Placement Problems</i>	<i>10</i>
<i>Print Content Incorrect</i>	<i>11</i>
<i>Software Problems</i>	<i>11</i>
<i>Service Diagnostic Tests</i>	<i>11</i>
SECTION 3 – Functional Operation	13
<i>Sequence of Operation</i>	<i>13</i>
<i>The AstroJet 2600P/2650P/2800P Printer Control Panel</i>	<i>14</i>
<i>Printer Driver Properties</i>	<i>16</i>
<i>Printing from Microsoft Word</i>	<i>20</i>
<i>Print Recovery after Jam</i>	<i>22</i>
SECTION 4 – Adjustments	23
<i>AstroJet 2600P/2650P/2800P Carriage Assembly Timing Adjustment</i>	<i>24</i>
<i>AstroJet 2600P/2650P/2800P Drive Belt Tension Adjustment</i>	<i>25</i>
<i>AstroJet 2600P/2650P/2800P Output Voltage Adjustment</i>	<i>26</i>
<i>AstroJet 2600P/2650P/2800P Media Sensor Adjustment</i>	<i>27</i>
<i>AstroJet 2600P/2650P/2800P Print Speed Adjustment</i>	<i>28</i>
<i>AstroJet 2600P/2650P/2800P Brake Adjustment</i>	<i>29</i>
SECTION 5 – Disassembly and Assembly	31
<i>Tools Required</i>	<i>31</i>
<i>Basic Disassembly</i>	<i>31</i>
<i>Replacing the Separator Tips</i>	<i>33</i>
<i>Replacing the Feed Rollers</i>	<i>33</i>
<i>Service Disassembly Procedures</i>	<i>35</i>
<i>Operator Side Covers</i>	<i>35</i>
<i>Non Operator Side Covers</i>	<i>36</i>
<i>Interface PC Board</i>	<i>36</i>

TABLE OF CONTENTS

Main Processor PC Board	37
Replacing Printheads and Transport Belts	37
Replacing Drive Motor, Motor Control PCB, Power Supply	41
SECTION 6 – Maintenance	43
<i>The Inkjet Cartridge</i>	43
<i>Cleaning</i>	45
Appendices	47
<i>Appendix A – AstroJet 2600P/2650P/2800P Specifications</i>	47
<i>Appendix B – Supplies and Optional Hardware</i>	48
<i>Appendix C – Wiring Diagram</i>	49

Section 1 - *Installation*

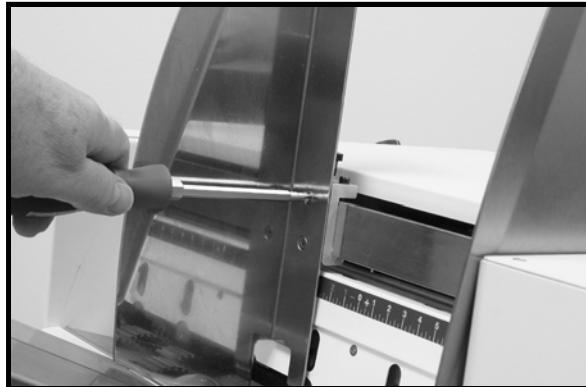
Unpacking the AstroJet 2600P/2650P/2800P

Tools required Standard #2 Phillips head screwdriver.

1. Remove accessories from feed area of printer.
2. Remove foam blocks from printhead area.

Attach the Side Guides to the Printer

1. Remove the two screws from the side guide blocks.
2. Position the side guide screw holes so that they align with the holes in the side guide blocks.
3. Insert the screws removed in step 1 and tighten them so that the guides are firmly attached to the side guide blocks.



Choose a Location

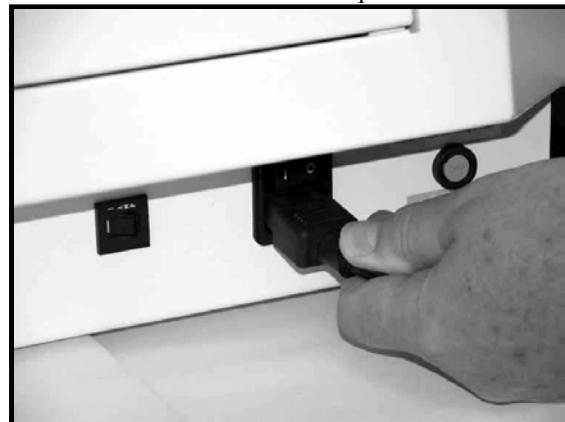
The AstroJet 2600P/2650P/2800P should be placed on a sturdy worktable or cabinet at least 12 inches from any walls. Protect the AstroJet 2600P/2650P/2800P from excessive heat, dust, and moisture – avoid placing it in direct sunlight.

Connecting the AstroJet 2600P/2650P/2800P

Plugging in the Printer

Make sure that the main power switch of the AstroJet 2600P/2650P/2800P Printer is in the OFF position.

1. Connect one end of the power cord to the rear of the AstroJet 2600P/2650P/2800P in the corresponding receptacle.
2. Depending on the version 115 volt or 220 volt, plug the other end into a 115 or 220 Volt AC, 50/60 Hz. Grounded outlet.



CAUTION

DO NOT USE AN ADAPTER PLUG OR EXTENSION CORD TO CONNECT THE PRINTER TO THE WALL RECEPTACLE.

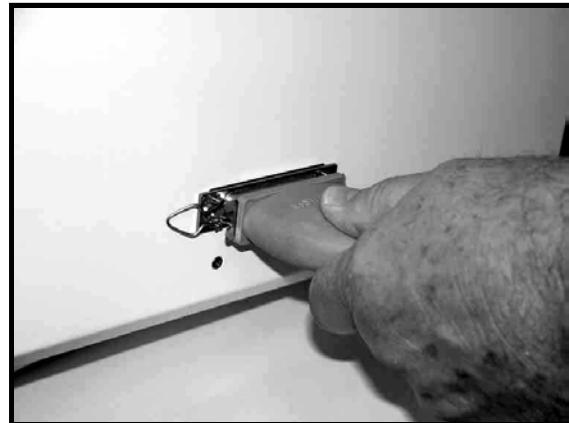
DO NOT USE OUTLETS CONTROLLED BY WALL SWITCHES.

DO NOT USE AN OUTLET THAT SHARES THE SAME CIRCUIT WITH LARGE ELECTRICAL MACHINES OR APPLIANCES.

SECTION 1 INSTALLATION

Connecting to the Computer

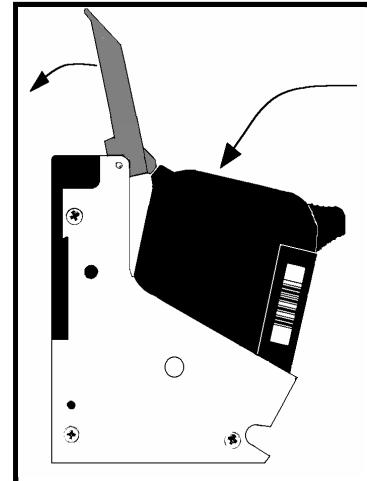
Plug the parallel printer cable from your computer into the rear of the printer and latch the two locking clips. **The cable used to connect the AstroJet 2600P/2650P/2800P to the computer must not exceed 6 feet long.**



Install the Inkjet Cartridges

The AstroJet 2600P/2650P/2800P can be configured with up to six inkjet cartridges. The cartridges are installed as follows:

- Remove the inkjet cartridge from its packaging, taking care not to touch the copper contacts, the metal plate, or the gold printhead. Remove the protective tape from the printhead.
- The cartridges are held in place by a latch lever mounted on the inkjet cartridge holder. Release the lever by raising it vertical.
- With the cartridge's printhead pointing down, slide the cartridge into the holder and push down and toward the contacts in the holder.

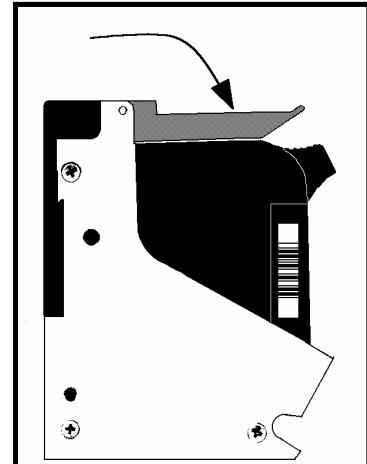


- Make sure the cartridge is seated in the holder then close the latch lever to secure the cartridge in the holder. Do not force the lever into place. (See the diagram.)
- Repeat the above for the remaining cartridges.

NOTE: For optimum image quality during the run, refer to "*Cleaning the Printhead*".

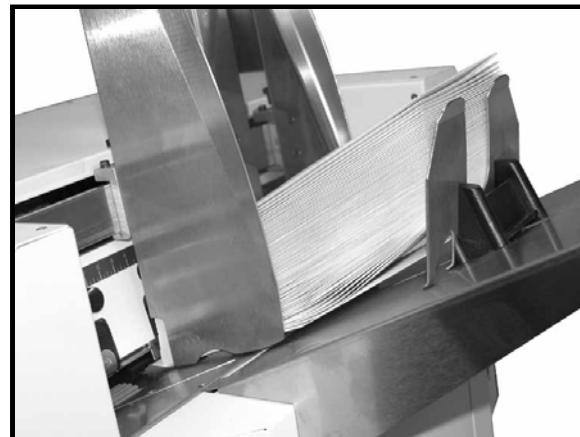
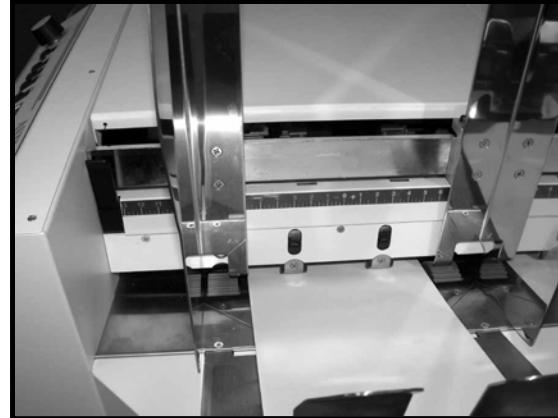


The ink in the cartridge may be harmful if swallowed. Keep new and used cartridges out of reach of children. Discard empty cartridges immediately.

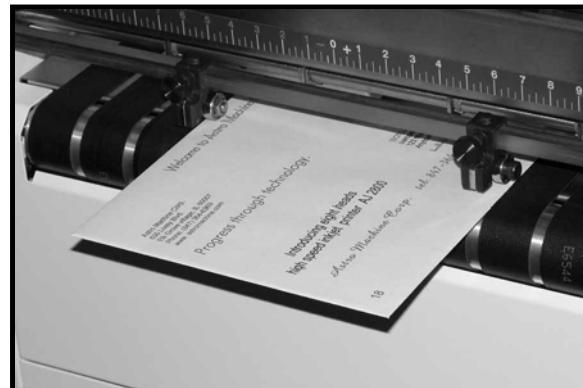


Setting up the Feed

1. Release the separator-locking lever located on the operator's side of the feeder, raise the separators to the up, and locked position. Move the side guides out to their extreme open position. Place one piece of media in the center of the feed table.
2. There are four separators on the feeder. Use the two center separators for narrow media and all four separators for wide media. Place the media under the separators and lower the separators so that they rest on the media.
3. Rotate the locking lever up to lock the separators in place.
4. Loosen the knobs on the side guides. Adjust the side guides to within 1/32-inch of the media. Then tighten the knobs.
5. Adjust the back guide so that the media is raised approximately 1/2-inch and rests on the curve of the back guide. When running 10 inch or longer or heavy media you may have to set the back guide so that it just touches the back of the media.



6. Feed a piece of media through the printer and adjust the two exit guides so that they ride on the media. To prevent smearing, make sure that the exit guides do not track over any printed information



7. Turn the AstroJet 2600P/2650P/2800P on and then turn the media thickness knob to set the initial print head height as follows:

Media Thickness	Dial Setting
.004" to 1/32"	0 to 2
1/32" to 1/8"	2 to 3
1/8" to 5/16"	3 to 7
5/16" to 3/8"	7 to 10

SECTION 1 INSTALLATION

NOTE: These are initial settings. It may be necessary to adjust the MEDIA THICKNESS control to optimize the print quality

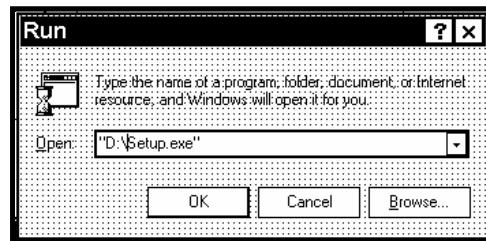
8. Press the **ONLINE** key, and then press the **ENTER** key, to test feed media.

Installing the Printer Driver

A dedicated printer driver is included with the Printer. It is installed on your computer and is used by your applications whenever you are printing from the Printer. Follow the steps below to install the driver:

NOTE: The driver for the Printer should be installed using the steps below. It is not installed as a standard windows driver.

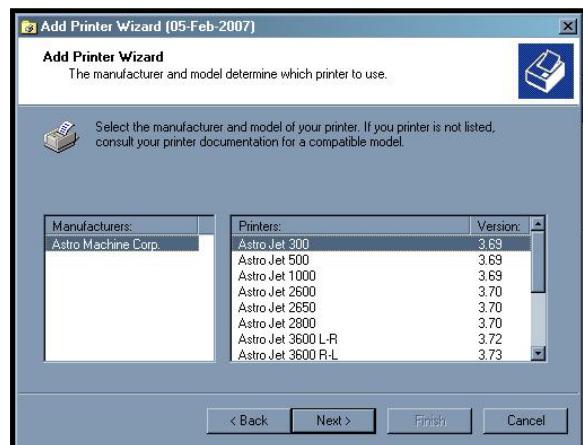
1. If you have, any applications running on your computer close them and restart the computer before beginning the driver installation.
2. Install the CD in the CD drive and click on **START**. Then click on **RUN**, then type the following; **D:\Setup.exe** (where D is the CD drive) then click **OK**.
3. The “Add Printer Wizard (n.nn)” window will open, click **Next>**.
4. Type in your Name and Company and click **Next>**.
5. Select the printer port **LPT1**: Then click **Next>**. The “Add Printer Wizard” will appear. Select AstroJet 2600P/2650P/2800P, and then click **Next>**.



NOTE: Each printer has a specific driver.

Printer Model	Printer Driver
AJ 2600P	Address Printer 6
AJ 2800P	Address Printer 8

6. The next screen allows you to “Name Your Printer”. Unless you have another printer of the same name on your system or network ignore this step and click **Next>**.
7. Click **Finish** to complete the installation.

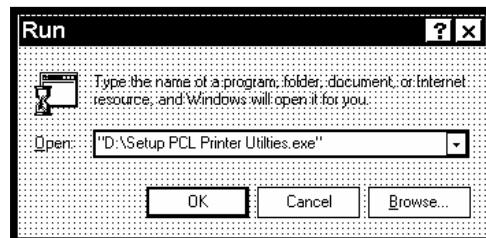


Installing the BIOS Manager

The BIOS Manager is used to upgrade the BIOS in the AJ2600P and AJ2800P Printer.

To Install the BIOS manager on your computer do the following:

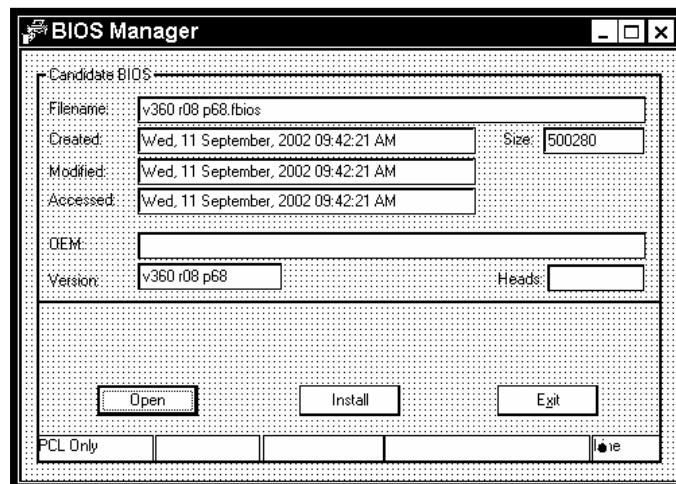
1. If you have, any applications running on your computer close them and restart the computer before beginning the BIOS manager installation.
2. Install the CD in the CD drive and click on **START**. Then click on **RUN**, then type the following; **D:\SetupPCLPrinterUtilities.exe** (where D is the CD drive) then click **OK**.
3. Follow the directions on the screen to install the BIOS manager software.



Using the BIOS manager

From time to time, you may receive new BIOS for the AstroJet 2600P/2650P/2800P printer. When the new BIOS is received, it will have to be loaded in the flash ROM on the printer. This is where the BIOS manager comes in. First, you will receive the new BIOS either via e-mail or on a floppy disk. It will have to be loaded into the BIOS manager software.

1. Open **Windows Explorer** and click on **Program Files**, then **PCL Only Printer Utilities**. Save the BIOS file to this folder.
2. Connect the Printer to the computer using the Parallel Port and turn the Printer **ON**.
3. Then in **Start** click on **Programs**, then the “PCL Only Printer Utilities” program and then click on “PCL Only BIOS Manager.exe” to start the program.
4. The BIOS Manager window will open. Click on the Open button, and select the new BIOS from the list of BIOS. Then click **Open**. This will return you to the BIOS Manager. Check to see that the *green Line* light is lit and then click on Install and the program will install the new BIOS on the printer.
5. The BIOS manager will install the new BIOS. When the downloading is completed click on **Exit** to exit the program.



WARNING

DO NOT TURN OFF OR DISCONNECT THE PRINTER DURING THE DOWNLOAD PROCESS. DOING SO WILL DAMAGE THE MAIN PROCESSOR PC BOARD.

Notes

Section 2 – Trouble Shooting

This section is arranged by first the condition that might occur, and then by possible problems, their cause and recommended solutions.

Power Problems

CONDITION	PROBLEM	SOLUTION
Power is on, nothing happens.	No power to printer	Check that the power cord is plugged in. Check that the power outlet is live. Check the fuse in the main power switch. Replace with a fuse of the same rating. Check the fuses on the power supply PC Board. (Requires disassembly) Bad controller PC Board. Bad power supply.

Interface Communication Problems

CONDITION	PROBLEM	SOLUTION
Printer does not respond to software.	Connection problems.	Check that the port is communicating with printer by using another parallel or USB cable, replace cable. If port cannot communicate using another parallel or USB cable, check printer. If port cannot communicate using another parallel or USB cable and the printer is OK, check parallel or USB port. Check cable connection to see if any of the pins are bent or missing. If so replace cable.
Printer not responding to software	Poor connection between printer and computer	Turn printer off and on again. Check connections.

LCD Display Problems

CONDITION	PROBLEM	SOLUTION
No LCD display	Power not on Contrast pot broken or maladjusted Broken solder joint on contrast pot	Turn power switch on. If still no display see Power Problems Adjust pot or replace display PC Board. Repair or replace the display PC Board.

SECTION 2
TROUBLE SHOOTING

CONDITION	PROBLEM	SOLUTION
LCD shows solid line of characters or garbage.	Power supply. Static electricity	Check voltages and inspect the power supply connections to the processor PC Board. Turn printer off and then on.
LCD displays solid black line or lines	Bad power supply No firmware (BIOS) Bad processor PC Board	Check all voltages Install firmware Replace processor PC Board

Feeding Problems

CONDITION	PROBLEM	SOLUTION
Intermittent feeding	Feed ramp not used Side guides set improperly Dirty feed rollers Paper stuck together Bad or dirty sensor Uneven mail piece	The feed ramp adds a slope to the stack and helps feeding. Loosen the side guides slightly. Clean the feed roller with distilled water and a cloth. DO NOT use any solvents or detergents as they may damage the feed rollers. Fan media before placing it in printer Clean sensor with compressed air or replace it. Tap inserts to front of envelopes and retry.
Multiple feeds	Separator gap not set properly. Sensor bad or dirty Media stuck together. Side guides too close to media Brake misadjusted.	Adjust separators to thickness of media. Clean sensor with compressed air or replace it. Fan media before feeding. Push side guides away from media. Adjust brake (see Section 4- Adjustments)
Failure to feed	Side guides too close to media ENTER key not pressed. No power to printer. Feed gap too tight. Feed gap too loose Material is out of specification. Motor on, feed rollers not turning. Clutch not engaging. Motor failure. No power Printhead adjustment too low.	Readjust side guides Instruct user on proper operation. Check the power button is ON and that the power cord is plugged in. Adjust separator to thickness of media Adjust separator to thickness of media. Maximum thickness is 3/8" or 0.375" Press the ENTER key, check for broken drive belt and replace, check for loose set screws on drive pulley or belt drive roller pulley. Replace Clutch. Check motor circuit breaker or replace motor. See Power Problems in this Section. Adjust printhead height to accommodate the media thickness.
Jams	Paper path obstruction Paper not loaded properly Feed ramp not used properly Separators improperly adjusted Media curled or bent. Bad or Dirty Sensor	Clear jam and remove pieces remaining under printhead. Instruct operator in proper loading of media. Set feed ramp Adjust separators to thickness of media. Uncurl media. Clean or replace sensor.

CONDITION	PROBLEM	SOLUTION
Jams continued	Worn separator tip. Printhead adjusted too low. Conveyor tape(s) under printhead broken.	Replace separator tip. Raise printhead Replace tapes.

Printing Problems

CONDITION	PROBLEM	SOLUTION
No printing: Media is blank after going under printheads.	Sensor did not see the piece and send the signal to print to the PC Board. Clogged cartridges Cartridge dried out Tape on printhead Cartridge not properly inserted Cartridge empty Power supply voltage out of spec. Printhead holder Printhead not positioned correctly to print on media	Clean or replace the sensor as required. Clean and purge cartridges Install new cartridge Remove tape Remove and reinsert cartridge Install new ink cartridge Check voltages Check flex circuit for tears Adjust printhead to print on media
Print slanted or skewed	Skew within specs. Side guides not set properly Printheads adjusted too high	± 2.5° from bottom edge of material Readjust Reset or lower printheads
Line spacing not uniform	Printheads not aligned properly	Realign printheads
Gray print	Ink cartridge almost dry	Replace ink cartridge
Blurry print	Envelope thickness adjustment incorrect Dirty printheads Paper too porous or absorbent Printheads scratched when cleaned	Adjust media thickness knob to lower printhead Clean printheads Use other paper Replace printhead

CONDITION	PROBLEM	SOLUTION
Blurry printing continued	Printhead assembly not synchronized	Adjust the carriage assembly timing to ensure that the cartridge assembly powers smoothly and contacts the media evenly on all corners
Printing light	Printhead clogged or dirty Resolution of output set too low Running low on ink	Purge and clean printheads Reset to a higher resolution Replace cartridge
Print streaking	Envelope thickness set too low Exit roller dirty Printhead dirty	Adjust media thickness Clean exit roller with water Clean printhead
Non-uniform print quality	Check voltage from power supply Poor printhead connections	Adjust to 14 VDC Check that the flex circuit connections are in place

SECTION 2
TROUBLE SHOOTING

CONDITION	PROBLEM	SOLUTION
White lines/streaks in a line of print	Ink cartridge nozzle dirty Cartridge not properly inserted Cartridge was hit, shaken, or dropped Tap water was used to clean cartridge and mineral deposits have blocked the ink chamber Wrongly directed or forceful wiping have driven particles into nozzles Cartridge low on ink Tape covering print nozzle or vent holes Printhead connections not set <u>Bad printhead drive card</u>	Clean cartridge Remove and reinsert cartridge Replace Cartridge Replace cartridge Replace cartridge, Instruct operator in proper cleaning method Replace cartridge Remove tape Check that flex circuit connections are in place Replace printhead drive card
Smeared ink	Carriage too low Coated paper preventing ink absorption High humidity slowing drying time	Raise Carriage Use fast-dry ink and/or allow more time to dry after printing Use fast-dry ink and/or lower dpi resolution

Print Placement Problems

CONDITION	PROBLEM	SOLUTION
Print too close to leading or trailing edge of media	Size of media not set correctly in Layout Bad or dirty sensor Feed ramp not used properly Printheads set incorrectly	Check layout in layout for proper size Clean or replace sensor Set feed ramp Check the location and margins in layout software. Check that the piece on the layout screen looks exactly the way you want the piece to look. Remember that there is a 1 5/16" space that is always blank between Head 4 and 5 and the Head 1, 2, and 3 bank
Print too high or low on the media	Physical location of printhead does not match the layout template	Adjust the paper guides or printheads. Use the "0" reference point in the center of the scale to help you align the print on the media
Address prints upside down on media	Layout and/or stock direction incorrect	Change direction from Normal to Inverted or Inverted to Normal in the Properties of the Driver.

CONDITION	PROBLEM	SOLUTION
Address too close to center of media	Chosen media size in layout is too small The physical location of the printheads do not match the layout Feed ramp not set properly	Set correct media width size in layout Check image on layout screen, Adjust paper guide or printhead Adjust feed ramp
Address printing partially off media	Chosen media size in layout is too large The physical location of the printheads do not match the layout Feed ramp not set properly	Set correct size from in layout Check image on layout screen, Adjust paper guide or printhead Adjust feed ramp

Print Content Incorrect

CONDITION	PROBLEM	SOLUTION
Information being printed is wrong, incomplete, or garbage	Poor cable connections Interface problem Corrupted database file	Check parallel cable: Securely fastened at both ends Cable does not exceed 6' in length Printers internal parallel or USB cable in good condition Check printer setup at computer Use another database file
Barcode does not print	Wrong font selected No zip code in database Barcode not enabled	If using a combined field barcode choose USPS barcode font Put zip code field in database or use another database Enable barcode
Unwanted BOLD , <i>Italic</i> , or <u>Underlined</u> type	Turned on in layout	Open layout and change type style
Not all addresses in database print	Only some of the addresses in database have been selected to print	Start new job and select entire database
Data is being lost	Database problem Parallel or USB cable connection loose	Check the database program Reconnect
Graphics or text have a white line through them	The graphic or text is set between the junction of two printheads	Move the copy or adjusts the printhead

Software Problems

Refer to the manual for the application software being used.

Service Diagnostic Tests

TEST PRINT key

Press the **TEST PRINT** key to place the printer into the Test Printing mode. Press the **ENTER** key to print a test sheet.

SECTION 2

TROUBLE SHOOTING

NOTE: Remove all media from the printer before performing these tests.

To access the Test Print mode press and hold the TEST PRINT key until “Service Menu” is displayed on the printer control panel. You can use the + or – key to step through the test options.

Drive Speed Test

Press the **ENTER** key to start the main drive motor and display the belt speed in inches per second. Press the **ENTER** key to stop the main drive motor. If the main drive motor does not start, the main drive motor circuitry has a problem. No reading in inches per second indicates an encoder problem.

Motor Test

Press the **ENTER** key to start the main drive motor. Press the **ENTER** key to stop the main drive motor. The main drive motor not starting indicates a problem in the main drive motor circuitry.

Clutch Test 1

Press the **ENTER** key to start the main drive motor and turn on the feed clutch. Press the **ENTER** key to turn off the feed clutch. If the clutch does not engage there is a problem with the clutch circuitry.

Clutch Test 2

This test is designed to operate the clutch in an ON and OFF mode. Selecting this test and pressing **ENTER** will cause the clutch to actuate and de-actuate in sequence.

Sensor Test

Press the **ENTER** key to display the state of the paper sensor. Uncovered displays when the sensor is **NOT** covered. Covered displays when the sensor **IS** covered. Use a strip of paper inserted in the sensor area to test its function. Failure to switch between the two messages indicates a problem in the sensor circuitry.

Power Supply Test

Press the **ENTER** key to display the voltage reading of the main power supply. The nominal reading is between 13.5 and 14.5 volts. The power supply may need adjusting to bring the value within the nominal range.

Encoder Test

Press the **ENTER** key to display the current encoder count reading. Move the exit roller. If the number does not increase, this indicates an encoder failure.

Keyboard Test

Press the **ENTER** key to test the function of the individual keys on the keyboard. When a key is pressed, the display shows the key name. To exit this test you must power the printer OFF.

Head Lift Test

Turn the **MEDIA THICKNESS** knob to “0”. Then press the **ENTER** key to lower the printhead carriage assembly. **DOWN** displays. Press the **ENTER** key to raise the printhead carriage assembly. **UP** displays. Failure of the carriage to move up and down indicates a failure in the head lift circuitry or with the media thickness control.

Ink Levels

The Ink Levels in each of the cartridges are displayed in this mode as a percentage. This will only display properly if the operator resets the system when a new cartridge is installed.

Section 3 – Functional Operation

Sequence of Operation

The user prepares the printer

1. Selects number and color of print cartridges required and installs cartridges in proper location.
2. Uses a single piece of media to set sheet separators.
3. Loads media and adjusts side guides to within 1/32" of media.
4. Stacks media in feeder and adjusts feed ramp.
5. User adjusts Media Thickness knob for proper printhead contact with media.
6. Turns printer on.

The user prepares the layout and creates a job

1. The user selects the database and opens the layout software such as Microsoft Word.
2. Creates a layout consisting of the variable data from the database using the merge function.
3. User then creates a layout using fixed information such as return address and adds graphics as required.
4. User saves layouts.
5. User initiates the Print function through the File menu in the program.
6. User then selects through the printer driver properties menu if the job has an overlay or not.
7. User then clicks on the print button to print the job.

Printing the Job.

1. When the user sends the job to the printer and downloading is complete, the system sends a signal to the interface board to turn on the main motor with the predetermined speed selected in the printer driver.
2. This causes the ON LINE light to illuminate on the ON LINE key and the drive motor starts to run causing the media transport belts under the printheads to turn.
3. The printhead carriage is lowered by the servomotor to the preset adjustment, which is controlled by the Media Thickness knob.
4. The user then presses the ENTER key and the feed clutch turns causing the three sets of feed rollers to turn and feed the media.
5. After the media travels 2.5-inches it covers the photo sensor and makes it output go low. This turns off the feed clutch and stops the feed rollers. The forwarding rollers that are driven by the transport belts move the media forward to the printheads.

The 2.5-inch distance between the feeder and the photo sensor paired with the clutch, action creates a 2.5-inch gap between the mailing pieces. This gap allows the media to feed reliably and the variable data sent by the PC to be positioned for printing.

SECTION 3 FUNCTIONAL OPERATION

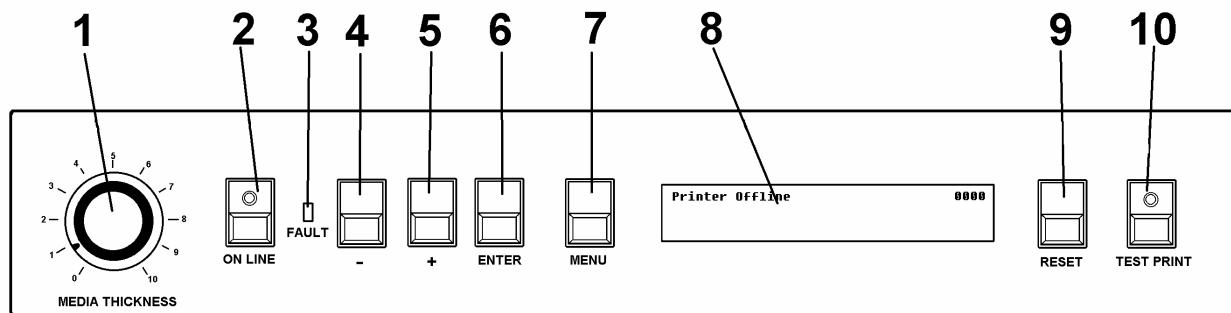
Printing

The print engine consists of six stationary printheads and moving transport belts, which position the media. Four circuit boards control the printer. (See the end of this chapter for their description and location.)

Printer Functional Description

1. A photo sensor in the path of the media between the feeder section and the printing section senses the lead edge of the media and sends a signal to the print engine on the main processor board that the mailing piece has arrived for printing. The feed clutch remains disengaged as long as a mailing piece is in view of the photo sensor.
2. When the mailing piece uncovers the sensor the clutch engages the feed rollers and the next piece of media starts moving toward the printer section. At this time, the print engine downloads the next variable record from the PC and gets ready for printing.
3. This cycle repeats itself as long as there is media in the feeder.
4. Either the cycle stops when the feeder runs out of media, the operator stops the process, or there are no records remain to be printed.

Printer Control Panel



1.	MEDIA THICKNESS – The knob on the right side of the control panel is used to adjust the height of the print heads to compensate for different media thickness.
2.	ON LINE key – The indicator on this key lights when data is sent to the AstroJet 2600P/2650P/2800P and they are ready to begin printing. This key also turns the printer off line so that the menu mode can be accessed.
3.	FAULT Indicator – This indicator lights when there is a problem with the printing process.
4.	- key – In the menu mode this key will scroll to the previous selection.
5.	+ key – When the printer is in the menu mode this key will scroll to the next selection.
6.	ENTER key – This key starts and stops the printing.
7.	MENU key – This key causes the printer to enter the menu mode where several operator functions can be accessed.
8.	OPERATOR DISPLAY – Indicates the printer's status including menus and error messages.
9.	RESET key – This key will reset the printer to its wait state.
10.	TEST PRINT key – Pressing this key will put the printer in the test mode and send a sample copy to check the printer's output.

Printer Control Panel

When you first turn the printer **ON**, the light in the **TEST PRINT** key lights and the display becomes active. At this point, the printer is ready to print if it is connected to your computer.

The printer control panel keys can be used to access various functions that help the operator control the printer. These functions and their operation are as follows:

ENTER key

The **ENTER** key is used to start the printer printing under production situations. When the printer is placed in any of the menu modes, the **ENTER** key is used to choose the options available.

TEST PRINT key

Pressing the **TEST PRINT** key momentarily places the printer in the test print mode. The word "Working" appears in the lower half of the display and after a short period of time the display changes to "Enter to feed". Pressing the **ENTER** key will start the printing process and print the test print. To stop the feeding press, **ENTER** again.

To restore the printer to the normal ready mode press the **ON LINE** key to take the printer off line and then press and hold the **RESET** key until the light on the **TEST PRINT** key blinks. The printer is then restored to its normal ready state.

Pressing and holding the **TEST PRINT** key will cause the printer to enter the "Service Menu" where the various functions of the printer can be tested. To exit the "Service Menu" turn the printer **OFF**, the **ON** again. The service menu is primarily used by service to diagnose problems should they occur. You can use the "+" or "-" key to scroll through the menu. Pressing the **ENTER** key will test the function. To restore the printer to its normal print mode, turn it **OFF** then **ON**.

To check the level of the ink cartridges when you enter the Service Menu press the "-" key and the amount of ink remaining will appear as a percentage in the lower half of the display window.

MENU key

The **MENU** key is used to access the special features built into the printer. The basic features are accessed by momentarily pressing the **MENU** key. Use the "+" or "-" keys to access the features. The features available under this mode of operation are as follows:

Clear Batch Counter – Pressing the **ENTER** key will clear the number in the upper right hand corner of the display. Resetting the counter is usually performed at the start of each job. Turning OFF the printer will not reset this counter.

Purge First Piece – Turning the feature **ON** will cause the printer to sent one purge pattern on the first piece. After the purge is completed the next piece will be have the first record of your database. Turning the printer **OFF** will reset this to **OFF**.

Press Enter to Purge – The purging function is useful to clear the printhead nozzles when the machine has been sitting idle for a period. To activate the purge, press the **ENTER** key and feed media. To stop the purge press, **ENTER** again.

Address Recovery – In event of a jam in the printer you can recover up to 10 pieces by pressing the **MENU** key, then stepping to the "Address Recovery". Then press the **ENTER** key. The message "Enter: Recover 1 Piece" will appear. Use the "+" key to select the number of pieces to reprint (1-10) then press **ENTER** again to start the printing process. When the pieces are printed press the **ONLINE** key and then the **ENTER** key to resume printing the job.

Print Enhancement – Pressing the "+" or "-" key will bring this message up in the display. The print enhancement feature is used when printing to ensure that the nozzles on the printhead stay open and prevent the loss of the descender on letters such as "y" or "q" and accent marks that do not appear in every address.

SECTION 3

FUNCTIONAL OPERATION

Pressing the **ENTER** key will turn this function ON or OFF. The function will remain as changed until the operator changes it again. Turning the printer ON and OFF will not affect the setting.

NOTE: The Print Enhancement feature will time out after 100 seconds if no media is going through the printer. Once media is being printed it will restart.

Installing New Printheads – The printer is capable of telling you when a printhead is running low of ink. To use this feature press the **MENU** key momentarily. Then use the “+” or “-“ key to highlight “Enter when head (n) is filled”. Press the **ENTER** key and install a new cartridge. Repeat for each cartridge you install. When the **ENTER** key is pressed the display will change to “Head (n) has a new cartridge”. To check the level of ink in the cartridges, Press and hold the **TEST PRINT** key until the “Service Menu” appears. Use the “+” or “-“ key to scroll to the “Service Menu: Ink Levels, 100%100%100%”. This will show how much ink remains in the cartridge.

NOTE: This feature only works if the cartridges remain in the original head where they were installed. If you swap the cartridges from one head to another, the levels will not be accurate.

There is a second set of menus available in the display. To activate them press and hold the **MENU** key until the “Setup Menu” appears. You can step through these items with the “+” or “-“ key.

Total Count – The total count displayed is the total number of prints that have passed through the printer. It is non-resettable.

BIOS Version – The version of the BIOS is displayed in this menu when the “+” key is pressed once. From time to time it may be necessary to upgrade the BIOS in the printer. When this is done, the new BIOS version can be checked in this manner.

Bulk Ink – This feature is not used on the AstroJet 1000P. No provisions are made to install the larger cartridges.

+ / - key

In the various menu modes these keys are used to step through the options.

ON LINE key

The printer automatically goes on line and the light in the **ON LINE** key lights when there is information from the computer to print. Pressing the **ON LINE** key during the printing operation will take the printer off line and stop the printing. To reset the printer to its ready state, turn it off line then press and hold the **RESET** key until the light in the **TEST PRINT** key blinks.

RESET key

The **RESET** key is used to clear the printer memory and return it to the wait state. This key only functions if the printer is off line.

Purge While Printing

To do the purge in the middle of a job, follow these steps:

Press **ONLINE** key to pause the current job.

Press the **MENU** key, then step to “Press Enter to Purge”.

Press **ENTER** key to start the purge and press the **ENTER** key again to stop purge.

Press **ONLINE** key and then the **ENTER** key to get back to normal printing.

Note. If paper jam occurs during the purge, after purge, you should use address recovery to get back to normal printing. Otherwise you will lose records.

Printer Driver Properties

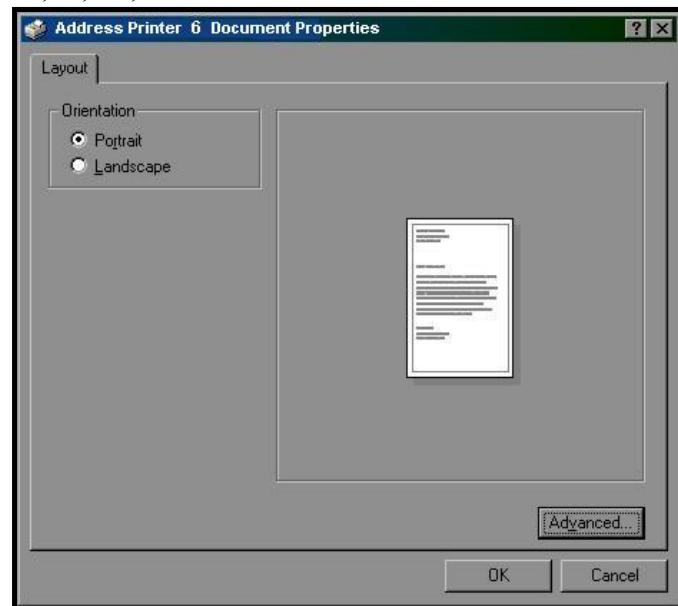
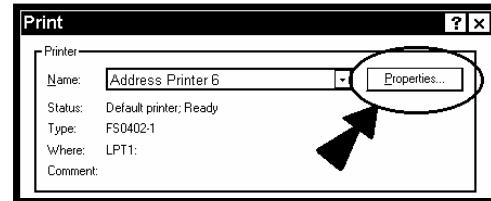
NOTE: The references in this manual are to the AstroJet 2600P printer. They also apply to the AstroJet 2650P and AstroJet 2800P printer. The difference is that the AstroJet

2600P printer has six printheads arranged in one, two, two and one sequence. The 2650P has six printheads arranged three and three and the AstroJet 2800P has eight printheads.

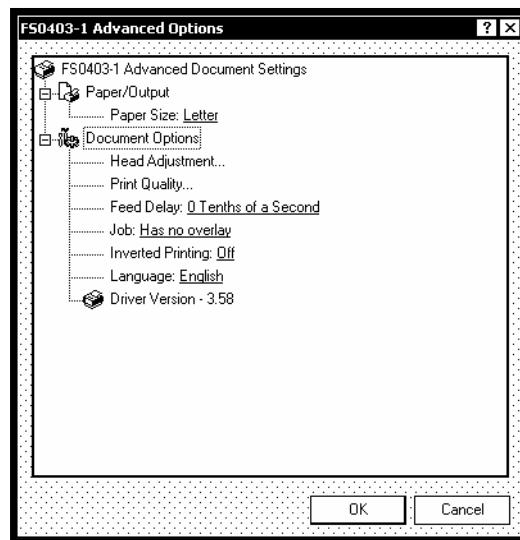
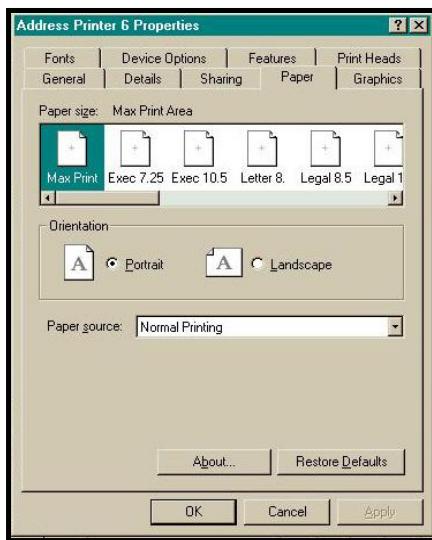
The printer driver describes to the printer how to print your job. It controls the operation of the printer and allows you to send fixed and variable text and graphics to the printer. Within your data, management software is a print function. In that, print function is a properties button. It is through the properties that you control the output of your printer. The following describes how to use the properties windows to customize the output of your printer.

To start printing click on **File**, then **Print**. The Print window will open. If you wish to print the job click on **OK**. If you wish to use the special features built into the AstroJet 2600P/2650P/2800P drivers. Clicking on the Properties button will open the properties window in Windows 95, 98, NT, or ME.

If you are using Windows 2600 P or XP the window on the right will open. Clicking on Advanced will open the Options window. In the following illustrations the windows for Windows 95, 98, NT, and ME will be on the left. The windows for Windows 2600 P and XP will be on the right.



When the properties window opens you are presented with several tabs in Windows 95 and 98. The following are standard windows printer driver functions and should be left at their defaults: **Graphics**, **Fonts**, and **Device Options**. The **Features** and **Print Heads** tabs are used to setup, change, and adjust the printer.

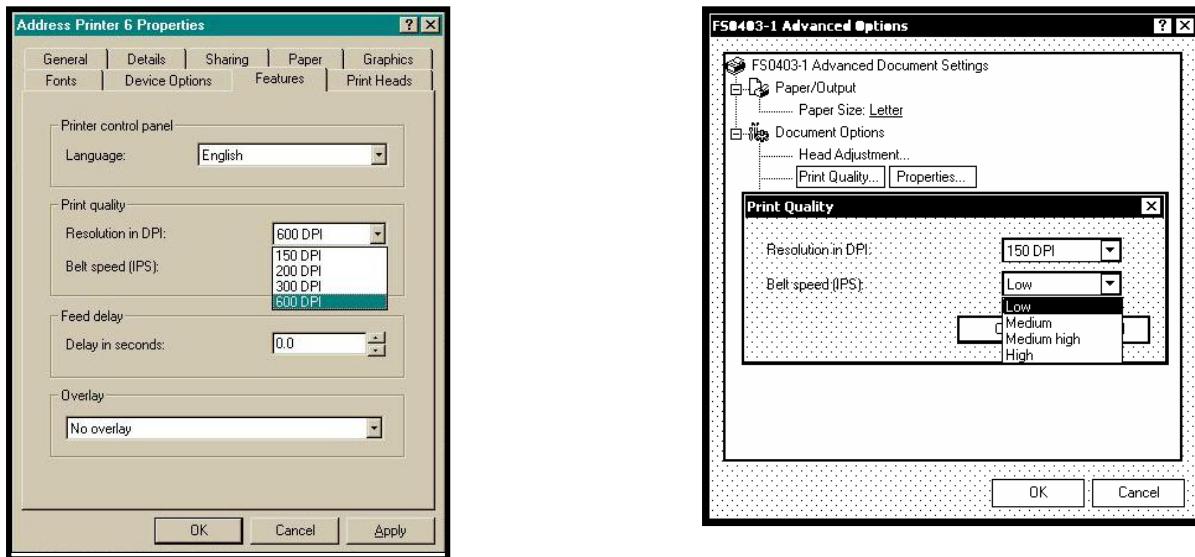


SECTION 3

FUNCTIONAL OPERATION

Features Tab

The **Features Tab/ Advanced Options** depending on the operating system is used to change the speed and resolution of the Printer, to add a delay to the feed to provide separation between the pieces, and to print and overlay with the job. The first feature is the Print Quality, which has two settings. One for the Resolution of the print quality and the second for the appropriate speed. Changing the resolution to a higher number e.g. 200 DPI to 600 DPI will increase the quality of the image. When the resolution is changed, the Belt speed (IPS) is automatically changed to the optimum speed for the resolution selected. You can, however change the speeds to a lower speed as follows:



Resolution	Speeds available
150 DPI	Low, Medium, Medium High, and High
200 DPI	Low, Medium, and Medium High
300 DPI	Low, and Medium
600 DPI	Low

The **Feed Delay** can be used to put more space between the pieces as they are being printed. This will give the first piece printed more time to dry before the next piece is printed. The adjustment range is in 0.1-second increments. This feature works at all speeds.

The **Overlay** feature is used to save time printing when you are combining a database with fixed information or graphics. The default is “No overlay”.



To use the Overlay feature, first create a layout in an application such as Microsoft Word. Place all of the fixed information and graphics on this layout. Open the layout and go to **Print** in the **File** menu. Click on **Features** and then click on **Overlay**. Select “Contains overlay” from the box, and then click on **Apply** and **OK**.

Next, click **OK** on the “Print” window. The overlay will down load and the printer will start running.

Now open the job that contains the variable data and using **File** then **Print** from the drop down menu open the “Print” window for the application. Click on **Properties** then on the **Features** tab. Then click on the drop down menu under Overlay and click on **Previous job contains overlay**. Click **Apply**, then **OK**. When the Print window reappears, click **OK** to send the job to the printer. To start printing press the **ENTER** key on the printer.

If you wish to print a second job using the same overlay, simply open that job and send it to the printer. If the next job does not contain an overlay, then click on **Properties** in the “Print” window, select Overlay, then **No overlay**. Click **Apply**, then **OK**.

To print the next job with a different overlay, repeat the process for the first overlay.

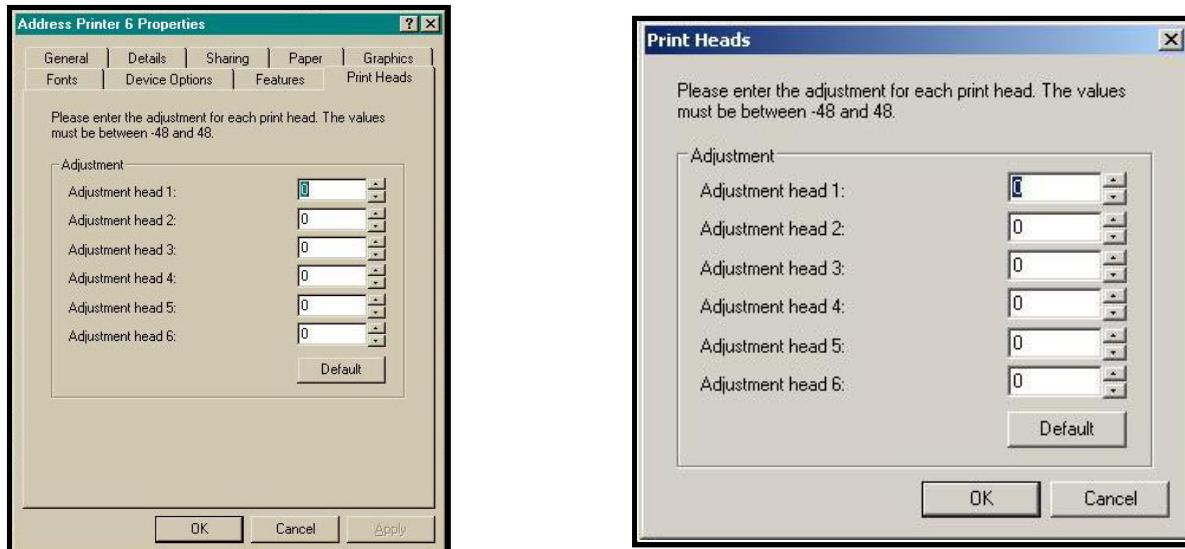
NOTE: Turning the printer OFF, then ON will clear the overlay and the job.

Print Heads Tab

The purpose of the Print Heads tab is to permit slight (0.001-inch) adjustment to the position of the print heads to each other. The adjustment is used to align the three printheads when printing graphics or type that extends beyond the width of one printhead. Each head can be moved +/- 0.048-inch in 0.001-inch increments.

If you want to move the printhead toward the lead edge of your layout then it should be moved in the “-“ direction. To move the head away from the lead edge move it in the “+“ direction.

When the printer is turned off, the changes that you make in this manner go back to the original settings.



Inverse Printing

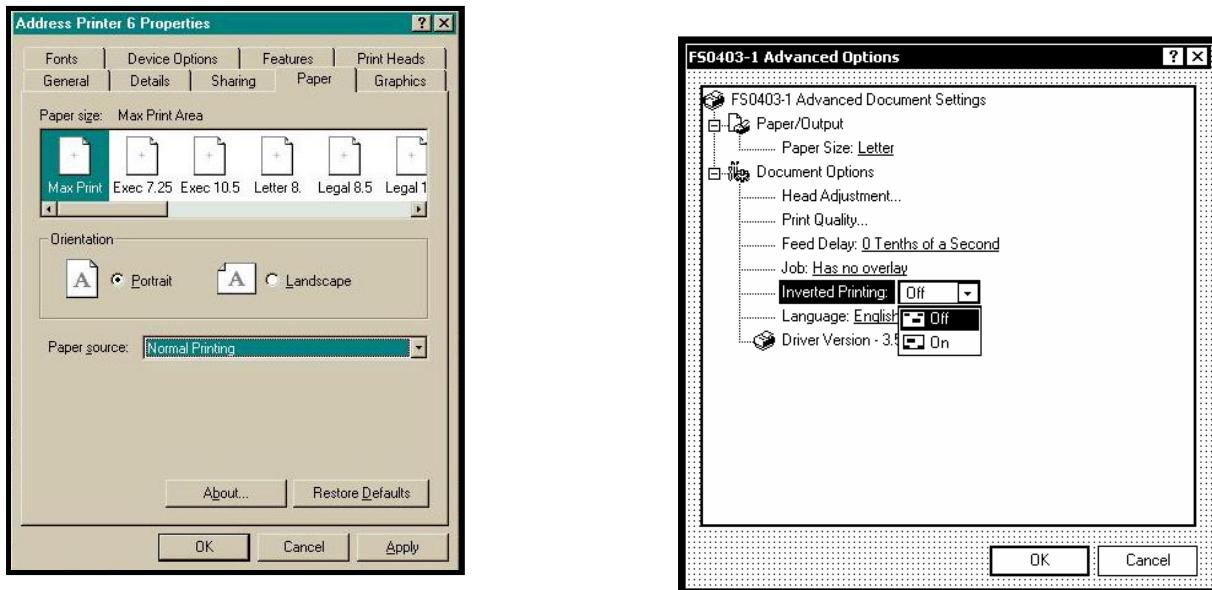
The Paper tab contains one element that is used to reverse or invert the printing on the AstroJet 2600P/2650P/2800P.

In normal operation the printing is read from the operator side of the printer. It is sometimes necessary to turn the printing direction 180 degrees from the normal direction. This occurs when because of the layout or the method of binding the media must be fed in the reverse direction.

Clicking on the paper tab and then on the paper source will permit you to reverse the printing direction 180 degrees.

SECTION 3 FUNCTIONAL OPERATION

The rest of the settings on this tab should be left as they are. Paper size is always “Max Print Area” and Orientation is always “Portrait”. Do not change them.

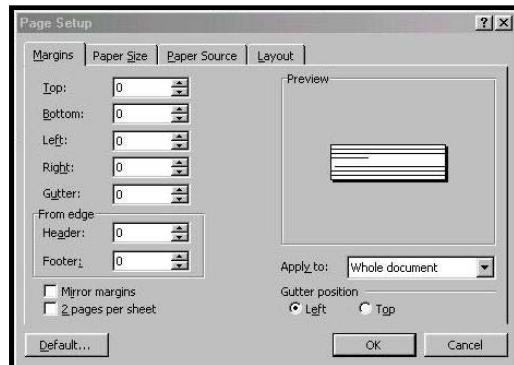


Printing from Microsoft Word

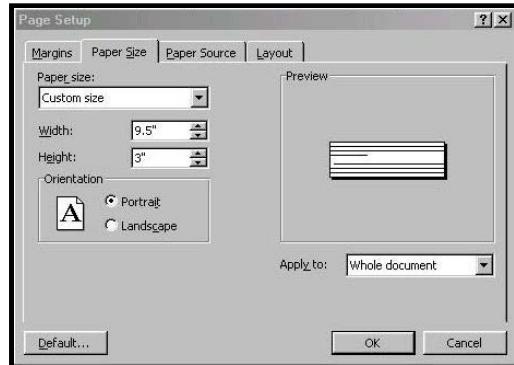
If you are not using a specific program designed for mailing applications it is possible to print your mail pieces using Microsoft Word. This section will cover how to layout a piece and to print from Microsoft Word.

To begin open a new page and turn on the tool bar for Mail Merge. Under Print, select the Address Printer 6 as the default printer. Go to **Page Setup** in the **File** menu. Set all of the margins to “0”.

NOTE: The printer must be selected before you do the setup so that the setting will be registered.

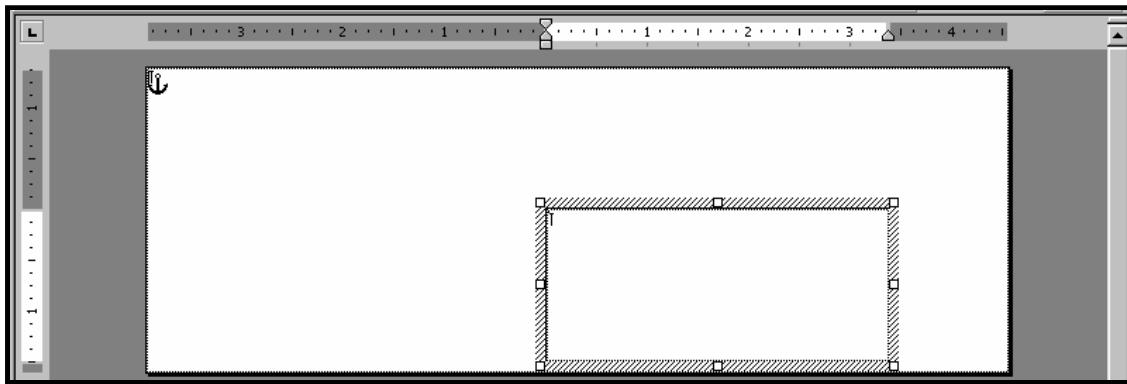


Next, select the **Page Size** tab and Custom Page. The size of the layout should be 3-inches high for the AstroJet 2600P or 4-inches high for the AstroJet 2800P, by the length of the piece you are intending to print. In our example, we have selected the width of a # 10 envelope, 9.5-inches. The orientation of the piece is always **Portrait**. The effective printing area of the ASTROJET 2600P is 3-inches by 17-inches and 4-inches by 17 inches for the ASTROJET 2800P. When you have completed this step click OK.



The next step is to create a text box so that you can position the address the proper distance from the lead edge of the piece. Once the page layout is set, you might want to save it as a template for use later.

When you have completed the steps above the layout for an AstroJet 2600P should look like the one below.

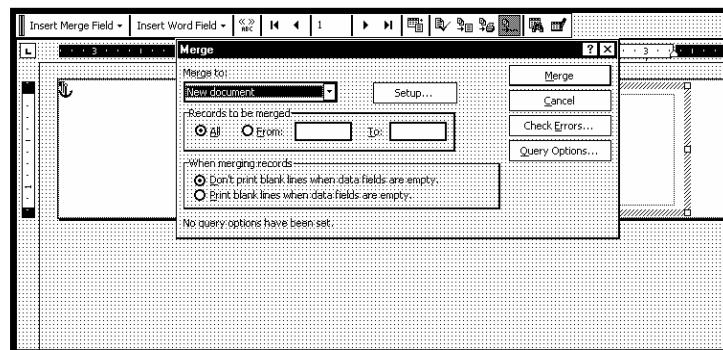
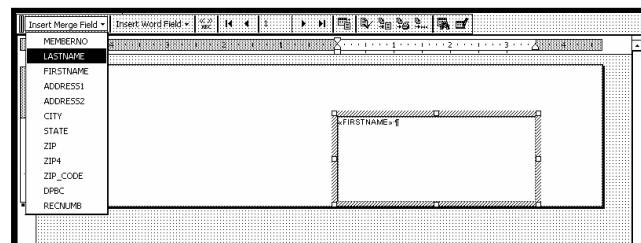
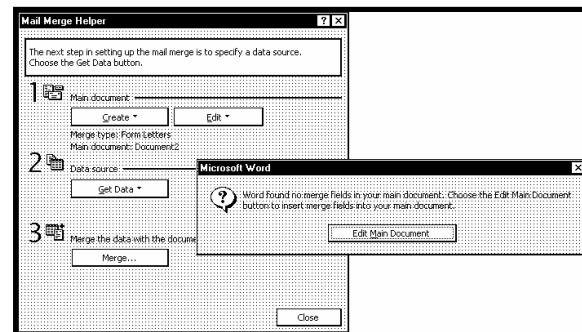


NOTE: When setting up a layout for the ASTROJET 2600P/2650P/2800P, be aware that the printheads are aligned in four banks and these banks can be aligned so that you can print up to 3" wide with the AstroJet 2600P or 4" wide with the AstroJet 2800P on your media, or spread the printing over the width of the media. There are two printheads that will print 1" or 1 1/2" of information depending on the printer and two single heads that will print 1/2" of information depending on the printer model. How you position them is up to the requirements of the job.

Click on **Tools** and then **Mail Merge**. The “Mail Merge Helper” window will open. Click On **Create**, then **Envelopes**. The “Microsoft Word” window will open. Click on the **Active Window** button, and then click on the **Get Data** button. Next, click on **Open data** source. Locate the data file you intend to use. In our example, we are using a Microsoft Excel file. Select the file and the “Microsoft Excel” window opens select entire spreadsheet and click **OK**.

Next, click on **Edit Main Document** and then click on **Close**.

Use the Mail Merge Tool Bar, click on Insert Merge Field, and begin to build the layout by inserting the address fields.



When you have completed setting up the layout, click on the **Mail Merge** icon on the tool bar and the “Merge” window will open.

In the **Merge to** menu, there are several choices for where how the data is exported. The two that concerns us is “New Document” and “Printer”. If you choose “New Document”, the merge will be created in your word application with a separate record for each address. If you

SECTION 3

FUNCTIONAL OPERATION

choose “Printer”, the merge will send directly to the printer and each record will be printed.

The next selection is “Records to be merged”. You can select All or From.

The last selection is “When merging records”. The default is “Don’t print blank lines when data fields are empty.” This should be left checked.

Clicking on **Merge** will start the process of merging the documents.

If you chose to send the merge directly to the printer and the printer is connected to the computer and turned ON, the printer will start. Pressing the **ENTER** key will start the printing process.

If you have a graphic or fixed text to be printed with the data, refer to the section on Overlays.

SECTION 4 – *Adjustments*

WARNING

The electrical adjustments are made with the machine under power. Make sure to use non-metallic tools when adjusting potentiometers on PC Boards.

SECTION 4 ADJUSTMENTS

AstroJet 2600P/2650P/2800P Carriage Assembly Timing Adjustment

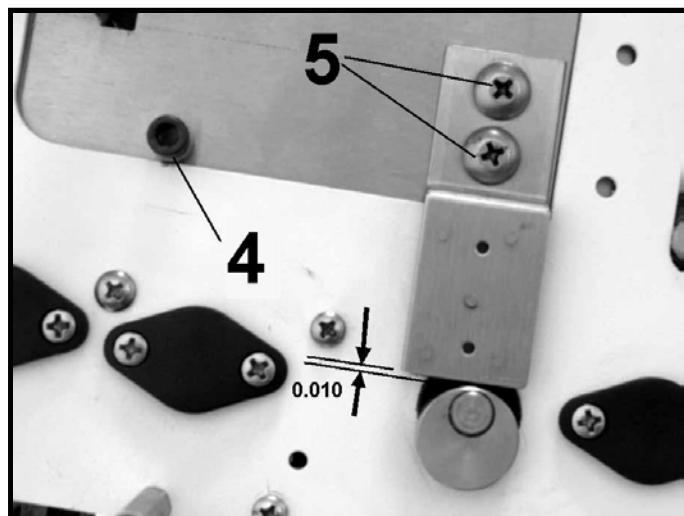
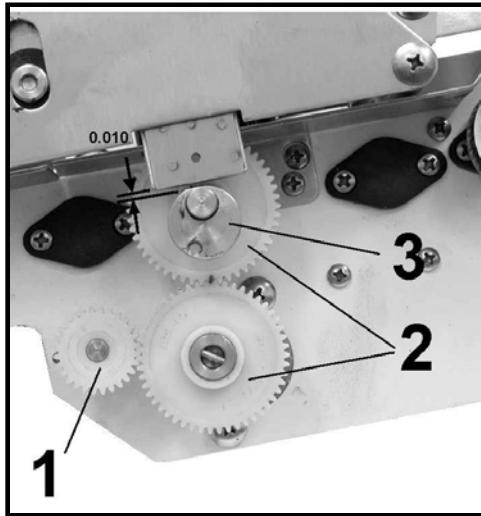
REQUIREMENT: To ensure the carriage assembly lowers smoothly and contacts the media evenly on all corners.

ADJUSTMENT:

1. Unplug the machine, remove the front, and rear covers. (5 screws each)
2. Turn the **MEDIA THICKNESS** knob to “0”.
3. Remove gear from potentiometer two hex screws [1].
4. Rotate the gear [2] on the servomotor on the operator’s side until the carriage is in its lowest position and the rollers on the heads are touching the belts on the conveyor. There should be at least a 0.010” gap between the cam [3] and the head raise support.
5. Check on the non-operator’s side of the unit to make sure that the head support pin [4] is touching the side frame and that there is at least 0.010” between the support and the cam. If not adjust the support bracket by loosening the two screws [5] and raising the bracket.
6. Turn the potentiometer clockwise, and then turn counterclockwise approximately 2 degrees.
7. Install the gear on the potentiometer shaft, align it with the gear on the servomotor and tighten the two hex screws [1] to secure it.

NOTE: *It may be necessary to rotate the servo motor gear to secure the second hex screw.*

8. Turn on the printer and press the **STANDBY** key. Check to see that the guide rollers on the heads contact the belts evenly as you turn the **MEDIA THICKNESS** knob.
9. Replace the side cover.

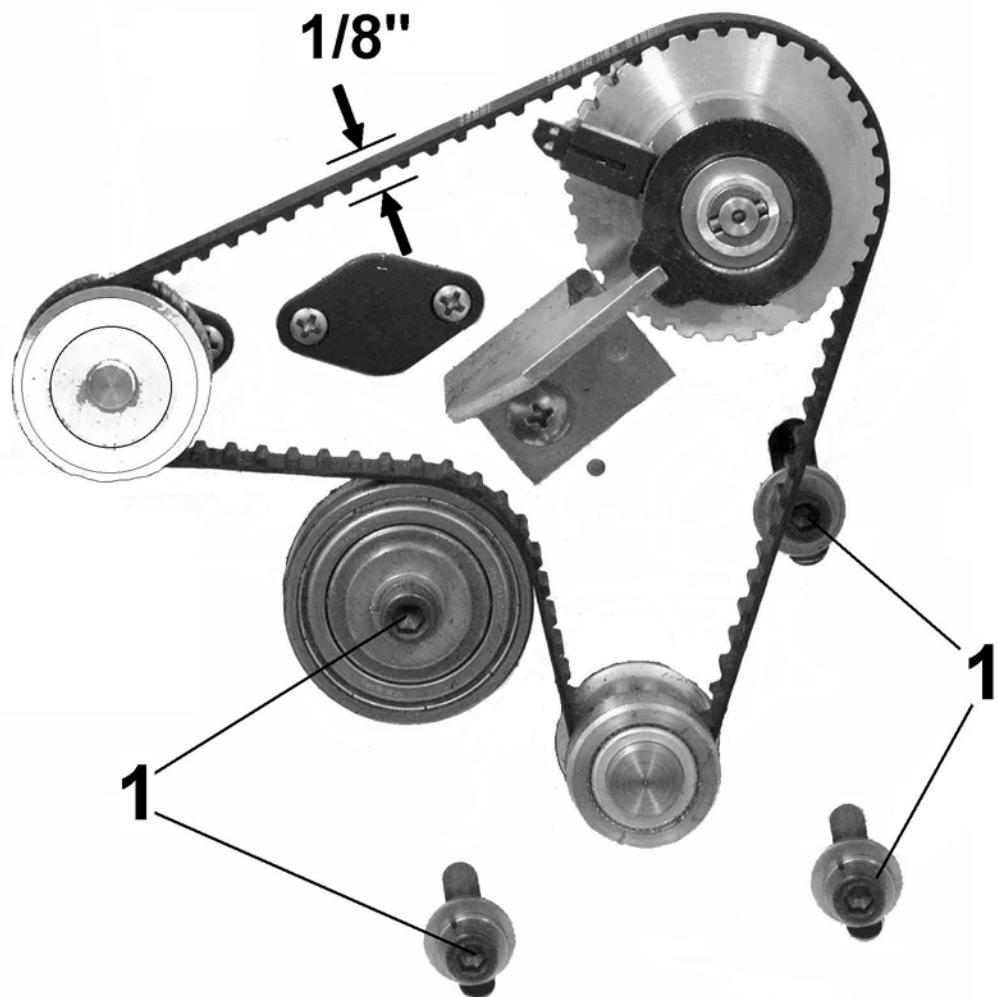


ASTROJET 2600P/2650P/2800P Drive Belt Tension Adjustment

REQUIREMENT: To ensure the drive belt has the proper tension.

ADJUSTMENT:

1. Unplug the machine and remove the Operator side cover. (5 screws)
2. Loosen the four screws [1] that mount the main drive motor to the frame.
3. Move the motor up or down to obtain at least a $1/8''$ deflection in the belt.
4. Tighten the four screws [1].
5. Replace the side cover.



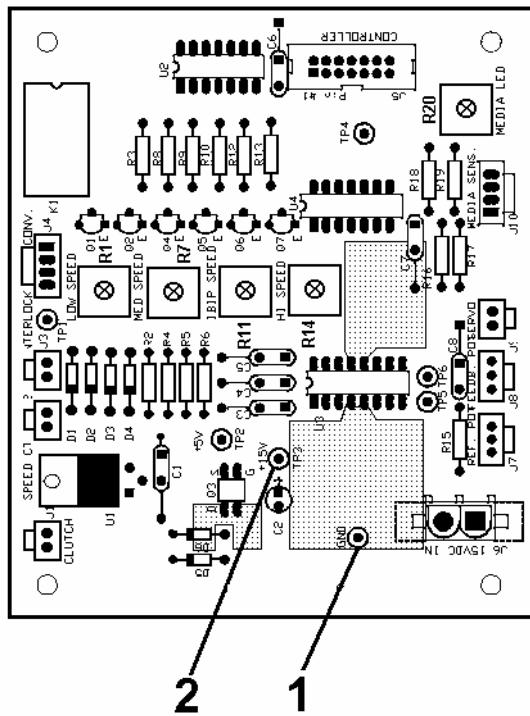
SECTION 4 ADJUSTMENTS

AstroJet 2600P/2650P/2800P Output Voltage Adjustment

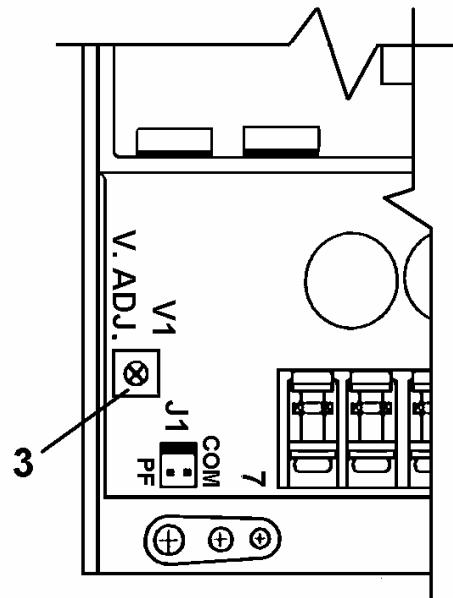
REQUIREMENT: To provide proper output from power supply to machine.

ADJUSTMENT:

1. Remove the left-hand rear cover and connect voltmeter probe to GND [1] and TP3 [2] on Interface PC Board P/N 97-500-30. Turn the printer **ON**.
2. Adjust R14 (V1 ADJ) potentiometer [3] on the Power Supply module P/N 123-1313 to obtain 14 VDC ± 0.1 V.
3. Turn the printer **OFF**, apply lacquer such as nail polish to the potentiometer, and replace the cover.



INTERFACE PC BOARD



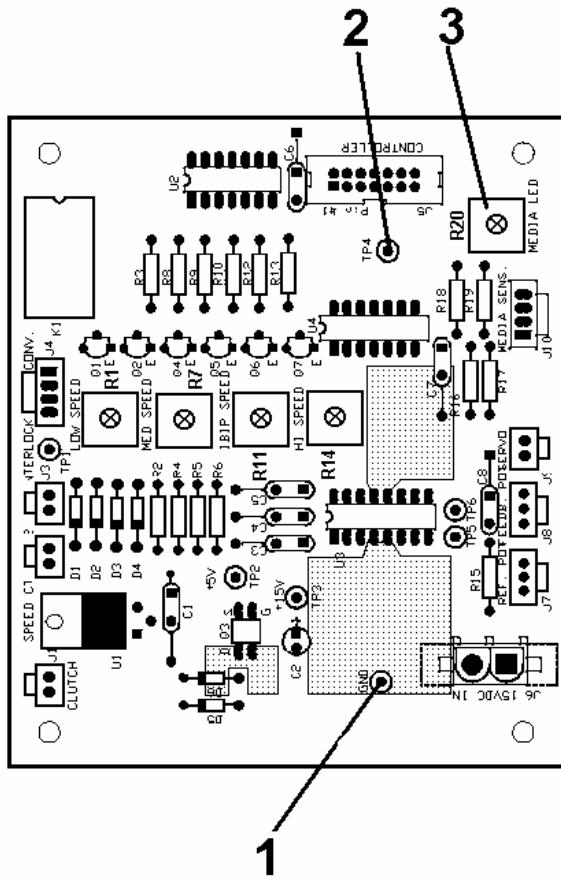
POWER SUPPLY
MODULE

AstroJet 2600P/2650P/2800P Media Sensor Adjustment

REQUIREMENT: To assure that the media sensor senses the media.

ADJUSTMENT:

1. Remove the left-hand rear cover and connect voltmeter probe to GND [1] and TP4 [2] on the Interface PC Board P/N 97-500-30.
2. Insert a BLACK media card over the sensor. Turn the printer **ON**.
3. Adjust R20 potentiometer [3] to read 0.5 VDC maximum.
4. Apply lacquer such as nail polish to the potentiometer to prevent movement of the adjustment.
5. Turn the printer **OFF** and replace the cover.



INTERFACE PC BOARD

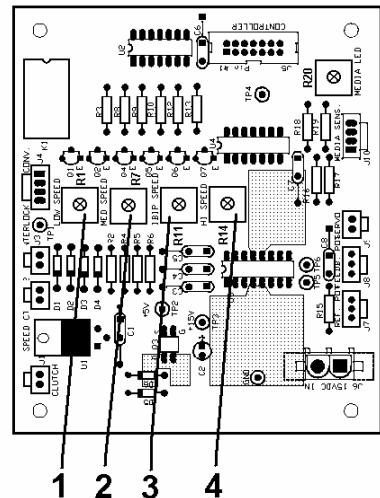
SECTION 4 ADJUSTMENTS

AstroJet 2600P/2650P/2800P Print Speed Adjustment

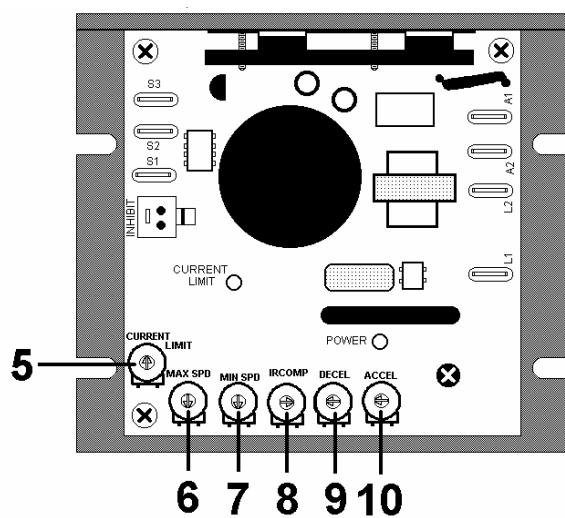
REQUIREMENT: To provide the proper speed of the printer at each of the print quality settings.

ADJUSTMENT:

1. With the printer connected to the computer, remove the left-hand, right-hand rear covers, and the rear panel. Turn the printer **ON**.
2. Set the potentiometers R1 [1], R7 [2], R11 [3] and R14 [4] on the Interface PC Board, to their center or middle positions.
3. The CURRENT LIMIT [5], DECL [9], and ACCEL [10] potentiometers on the Speed Control PC Board P/N 123-1405 (MMXL05) or P/N 123-1651 (MMXL02) are pre set at the factory and should not require adjustment. There is an arrowhead on the adjustment slot of the potentiometers to indicate direction.
4. Hook up a frequency meter to GND and SIG 1 (Encoder) test point on Main Processor PCB. Open a job and click on **File**, then **Print**. In the **Properties** window select **Features** and then select **150DPI** and **High** speed. Click **Apply**, then **OK**. Then click **OK** to start the printer.
5. Set the Hi-Speed pot. (R14) [4] on the Interface PC Board to its middle position and adjust the MAX SPD [5] potentiometer on the Speed Control PC Board until the frequency reads 40KHz.
6. Then adjust R14 [4] to obtain a frequency of 48.0KHz (80 ips). Feed one piece of media.
7. Restart the job above, but set the speed at **Medium High** and adjust R11 [3] to obtain a frequency of 36.0KHz (60 ips).
8. Repeat Step 7 again, but set the speed at **Medium** and adjust R7 [2] to obtain a frequency of 27.0KHz (45 ips).
9. Repeat Step 7 again, but set the speed at **Low** and adjust R1 [1] to obtain a frequency of 13.2KHz (22 ips). Then exit the **CONTROL PANEL** software and turn **OFF** the printer.
10. Apply lacquer such as nail polish to the nine potentiometers to prevent movement of the adjustments and replace the covers.



INTERFACE PC BOARD



SPEED CONTROL PC BOARD

ASTROJET 2600P/2650P/2800P Brake Adjustment

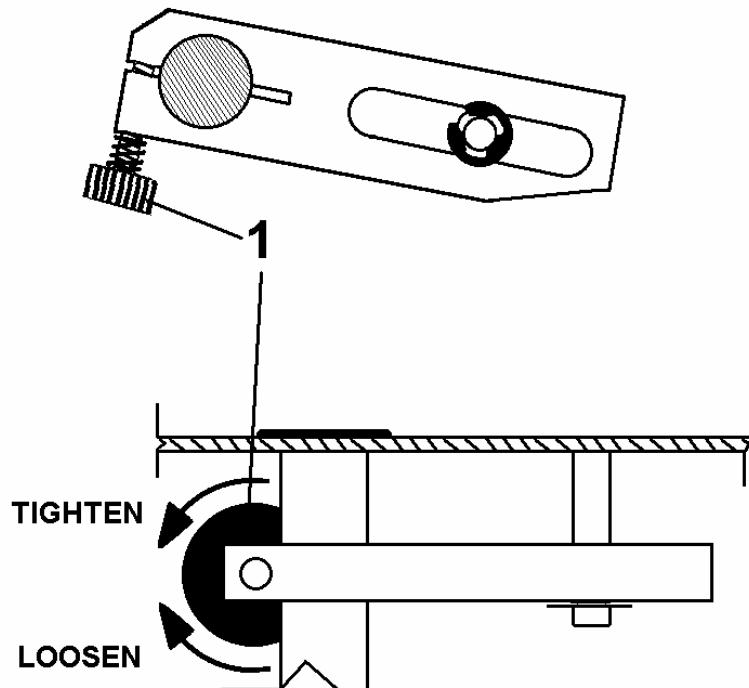
REQUIREMENT: To provide the proper tension on the feed shaft brake assembly for proper feeding of the media.

ADJUSTMENT:

1. Disconnect the Printer from the power source.
2. Remove the Operator side cover, Non-Operator side cover and rear cover.
3. Reconnect the printer to the power source and turn it **ON**.
4. Turn the brake tension adjusting screw [1] clockwise until the brake exerts a drag on the feed rollers.
5. Load # 10 envelopes and turn the printer **ON**. Press the **TEST PRINT** key, then the **ENTER** key to start the feeding the media. Observe that only one piece of media feed at a time.

NOTE: If more than one piece feeds at a time increase the tension by turning the screw clockwise. If the machine slows down, decrease the tension by turning the screw counterclockwise.

6. Turn off the printer, disconnect from the power source and replace the covers.



Notes

SECTION 5 – Disassembly/Assembly

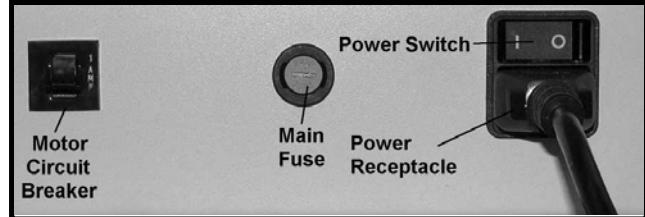
Disassembly – Assembly Procedures

Tools Required

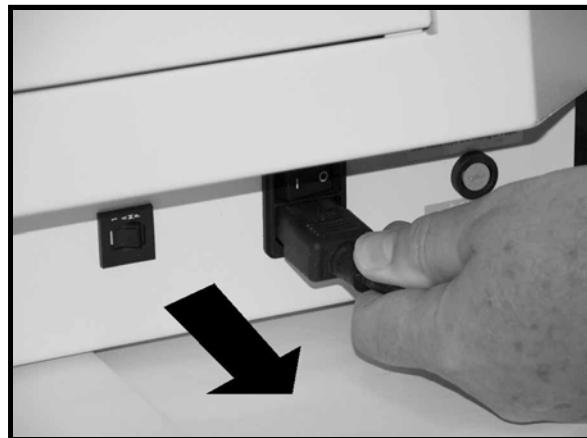
#2 Phillips head screwdriver	3/32" Allen wrench
#1 Phillips head screwdriver	5/32" Allen wrench

Basic Disassembly

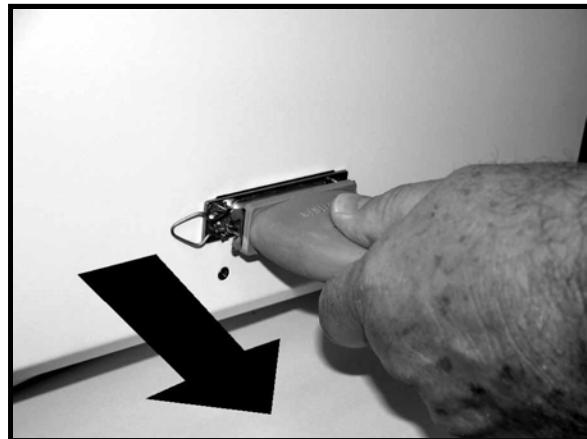
Turn off Power



Disconnect Power Cord



Disconnect Interface Cable

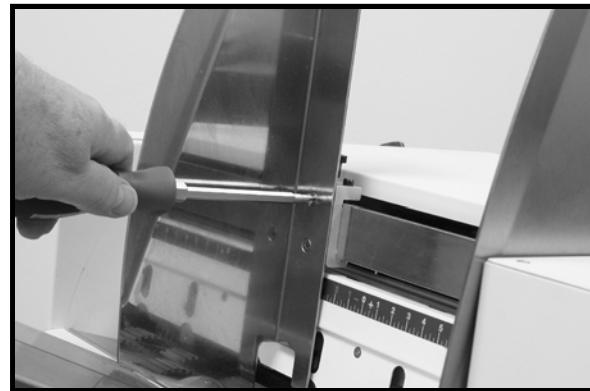


SECTION 5

DISASSEMBLY – ASSEMBLY

Removing the Side Guides

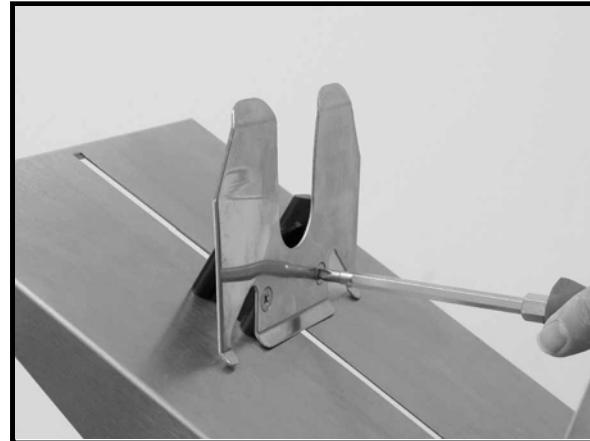
Remove four screws as shown at right.



Removing the Feed Ramp

Remove two screws as shown at right.

This part does not have to be removed in order to remove the feed deck.



Removing the Print Cartridges

1. Lift the blue lever.
2. Remove the cartridge.
3. Close the lever.



Replacing the Separator Tips.

1. Before replacing the separator tips, unplug the AstroJet 2600P/2650P/2800P.
2. Release the sheet separator-locking lever on the left side of the feeder.



3. Push down the black tab on the separator to expose the screw.



4. Use a Phillips screwdriver and remove the screw holding the metal cover over the separator. Use the tip of the screwdriver to pry the separator tip out of its holder.
5. Replace the separator tip; reinstall the metal cover and screw. Do not over tighten.

Replacing the Feed Rollers

To replace the feed rollers on the AstroJet printer follow the steps below:

1. Before removing the feed roller access plate, unplug the power to the printer.
2. Using a Phillips screwdriver, remove the three screws from the feed roller access plate.



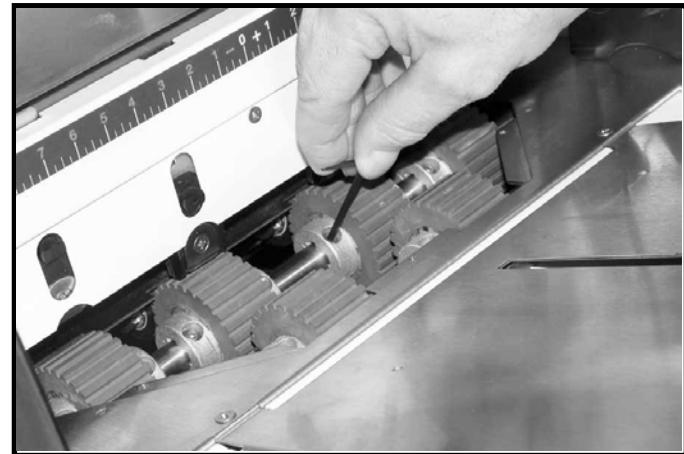
SECTION 5

DISASSEMBLY – ASSEMBLY

3. Remove the feed roller access plate.



4. Rotate the feed roller shaft so that the screws are face up and use a 3/32-inch Allen wrench to remove the two button head cap screws. This will permit you to remove one half of the feed roller. Rotate the shaft until the two screws holding the second half of the feed roller in place are accessible. Remove those screws also. Install the feed roller half and replace the screws. Rotate the shaft, replace the second feed roller half, and fasten with the remaining screws.
5. Replace the feed roller access plate and fasten with the four Phillips screws.



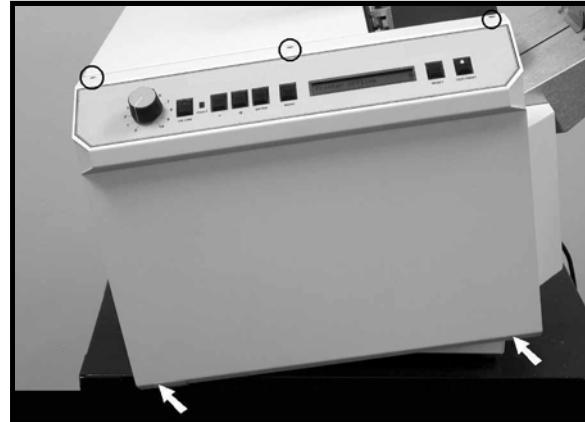
Service Disassembly Procedures

NOTE: The following disassembly should only be done by a qualified, trained service representative.

CAUTION: When touching electronic boards wear a wrist strap that is grounded.

OPERATOR SIDE COVERS

1. Remove the three screws at the top of the left hand operator side covers. Then remove the two screws from the bottom of the cover.
2. Remove the cover. Do not pull it too far away as the cable to the control panel could be damaged.
3. Disconnect the control panel cable from the PC Board. Disconnect the connector from the Media Thickness Control.
4. Reassemble in reverse order.

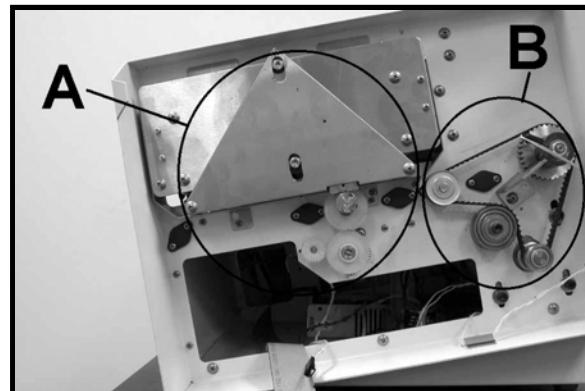


A is Head Transport Mechanism under Left Operator Side cover.

See Carriage Assembly Timing Adjustment in Section 4-Adjustments.

B is the Motor, Motor Drive Belt and Feed Clutch.

See Motor Drive Adjustment in Section 4 - Adjustments



SECTION 5

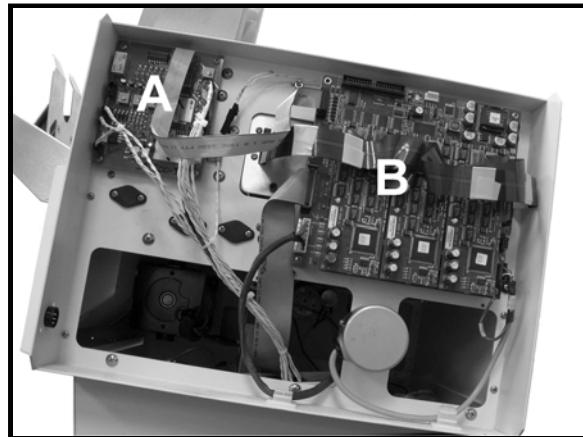
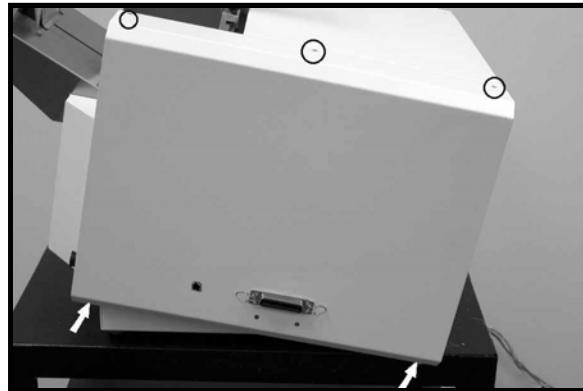
DISASSEMBLY – ASSEMBLY

NON-OPERATOR SIDE COVERS

1. Remove the two screws at the top of the left hand non-operator side cover. Then remove the two screws from the bottom of the cover.
2. Remove the cover.
3. Remove the two screws at the top of the right hand non-operator side cover. Then remove the two screws from the bottom of the cover. The Interface PC Board [A] is under this cover.

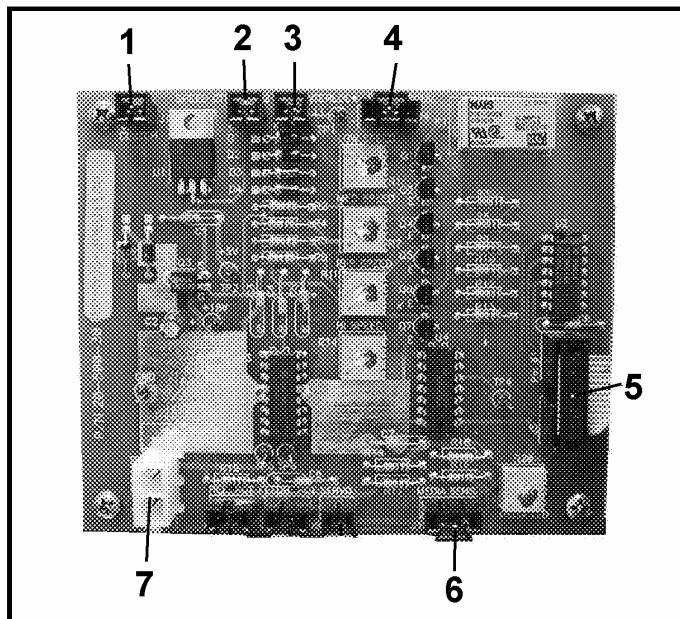
NOTE: The AstroJet 2600P is shown. The same procedure is used for the AstroJet 2800P

4. Remove the cover. Do not pull it too far away as the cable from the printer port is connected to the Main Processor PC Board [B]. Disconnect this cable from the PC Board and set the cover aside.
5. The two PC Boards under these covers are attached to the machine by four screws each. Unplug the connectors and then remove the screws to remove the PC Boards.



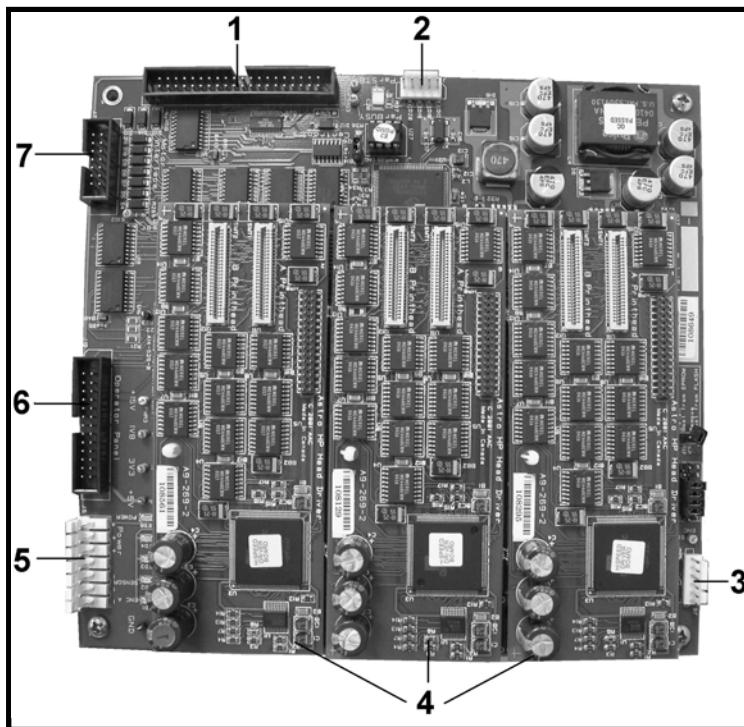
INTERFACE PC BOARD 2600P and 2800P

1. CLUTCH
2. SPEED CONTROL
3. INTERLOCK – Safety Switch
4. CONV. – Conveyor Interface
5. CONTROLLER
6. MEDIA SENS.
7. 15VDC IN – Power input for Interface PCB.



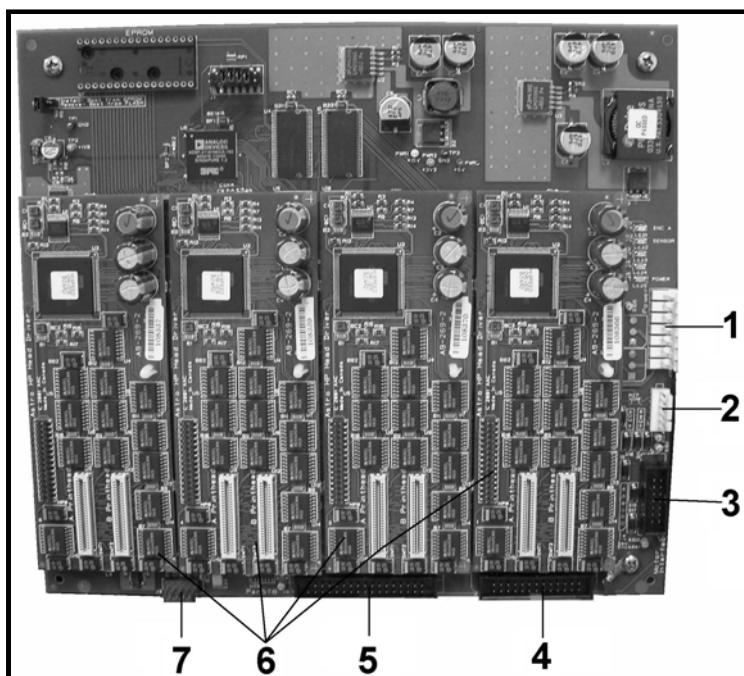
MAIN PROCESSOR PC BOARD – 2600P

1. PARALLEL PORT
2. USB PORT
3. ENCODER
4. PRINTER DRIVER PC BOARDS
5. POWER INPUT
6. OPERATOR CONTROL PANEL
7. INTERFACE PC BOARD CONNECTOR



MAIN PROCESSOR PC BOARD 2800P

1. POWER INPUT
2. ENCODER
3. INTERFACE PC BOARD CONNECTOR
4. OPERATOR PANEL
5. PARALLEL PORT
6. PRINTER DRIVER PC BOARDS
7. USB PORT



SECTION 5

DISASSEMBLY – ASSEMBLY

REPLACING PRINTHEADS AND TRANSPORT BELTS

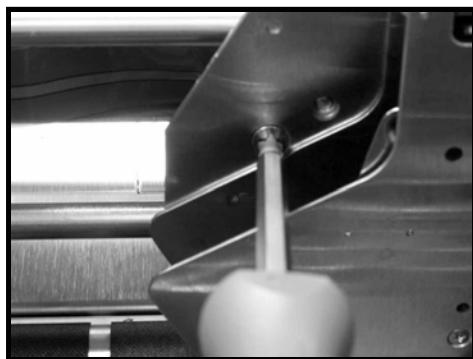
1. Remove both the Operator and Non-Operator side covers and the Main Processor PC Board.
2. Remove top cover by removing the two screws that attach it to the frame and the two springs.



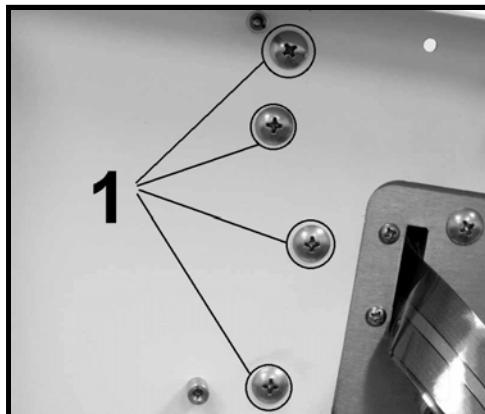
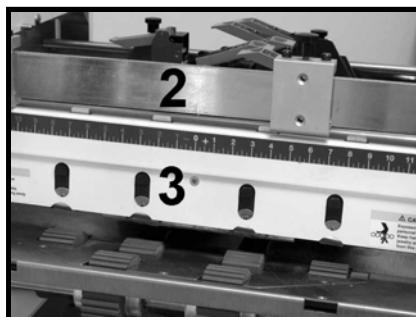
3. Remove cover over printhead assembly by removing the two Allen screws front and rear.
4. Remove the ribbon cable from each cartridge. Take care to prevent damage to the ribbon cable or the connectors.



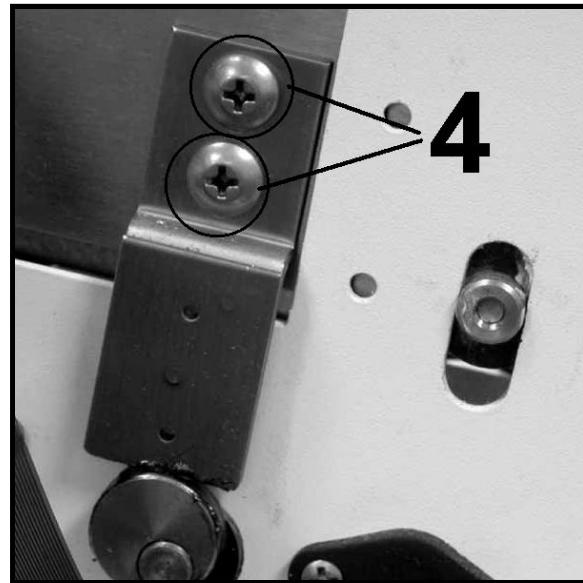
5. Remove the Allen screw holding the printhead assembly to the bracket and remove the printhead assembly.
6. Repeat for the above steps for the remaining printhead assemblies.



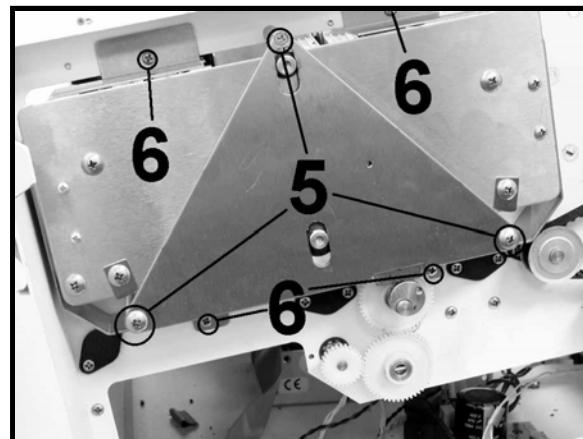
7. Remove the four screws [1] on each side that mount the side guide assembly [2] and the sheet separator assembly [3] then, lift out the assemblies.



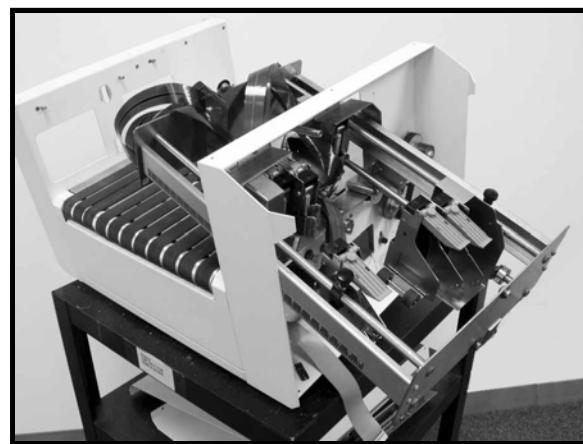
8. Continue disassembly by removing the ground screw and ground wire from the carriage assembly.
9. Then remove the two screws [4] that attach the carriage support bracket on the non-operator side.



10. Continue the disassembly by removing the mounting bracket on the operator side by removing the three screws [5]. You may find it necessary to remove the shield around the print head assembly by removing the four screws [6], also.



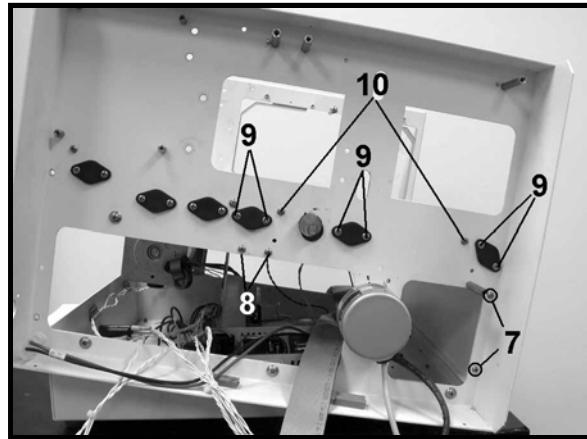
11. Slide the printhead assembly out of the machine from the operator's side. Take care that the ribbon cables are not damaged during this process. If you remove the exit roller-mounting bar and exit rollers, the task will be easier.



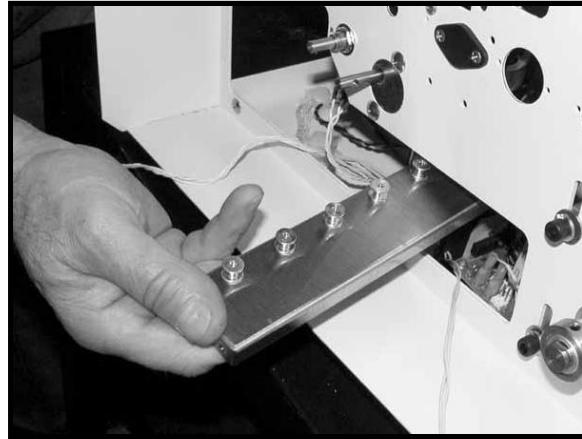
SECTION 5

DISASSEMBLY – ASSEMBLY

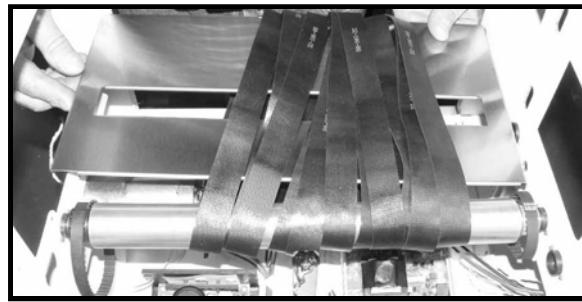
12. Remove the two screws [7] on the non-operator side and on the operator's side. Remove the front cover.



13. Refer to Step 12 and remove the two screws [8] on the non-operator's and the operator's side and remove the belt guide assembly.



14. Continue the disassembly by removing the six screws [9] Step 12, from the bearing caps on each side of the machine and remove the bearing caps. Remove the exit roller, and then remove the two screws [10] Step 12 from each side of the machine that support the belt support plate and remove the plate.

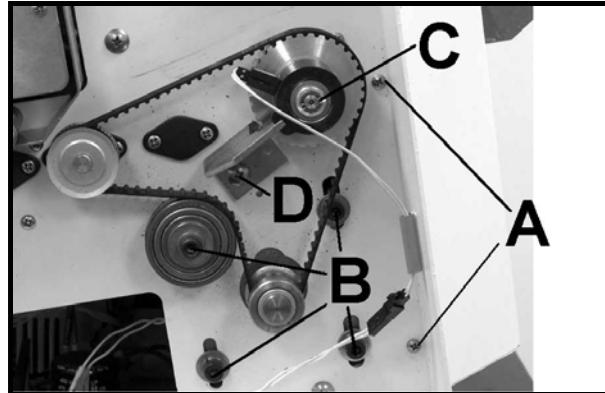


15. Remove and replace the belts.
16. Reassemble in reverse order making sure that the encoder drive belt and the transport belts are in their proper place before installing the bearing caps. It is easier when reassembling, to install the belt drive roller first, then the front exit roller. You may use a flat piece of metal stock to help with the installation of the exit roller bearings. Next install the support plate screws [10], and then the belt guide assembly and screws [8]. Lastly, install the front cover plate and screws [7].

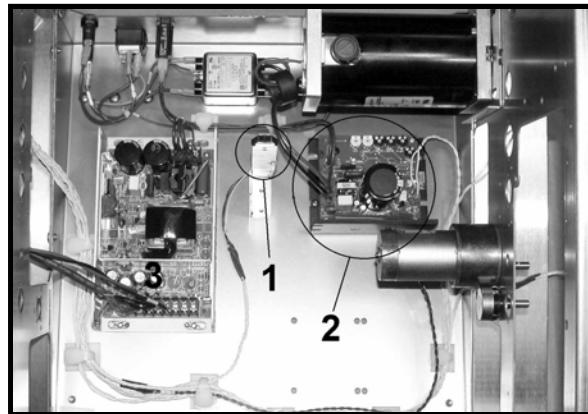


REPLACING DRIVE MOTOR, MOTOR CONTROL PCB AND CLUTCH

1. Remove operator right hand cover and non-operator left hand cover.
2. Remove the four screws [A], two each side from the rear cover plate and remove the rear cover plate.
3. Unplug the motor from the motor speed control and then, remove the four Allen screws [B] that attach it to the operator side-frame. Remove the drive belt, and then remove the motor from the machine.
4. To remove the clutch, first disconnect the connector, and then push out the pin [C]. Remove the bracket screw [D] and pull the clutch off the shaft.



5. To remove the Motor Speed Control PC Board [2], then disconnect the wires going to the board and remove the two screws that attach the PC Board to the base of the machine. Remove the PC Board.
6. To remove the Power Supply [3], then disconnect the wires going to the board. Rest the machine on the non-operator's side and remove the four screws that attach the assembly to the base of the machine. Remove the Power Supply
7. The sensor [1] can be accessed by removing the front cover and then removing the two screws that attach it to the base.



Notes

Section 6 - Maintenance

This section covers how to care for the ink cartridges, clear paper jams, replace the sheet separators, and perform routing maintenance on the printer.

The Inkjet Cartridge

The inkjet cartridges must be replaced when out of ink, when print quality is poor, or when purging and cleaning have not helped the image quality.

The Approximate life of the HP 51645A Inkjet cartridges based on three lines of 20 characters at 10-point size per address is:

600 x 600 DPI	50,000 addresses
600 x 300 DPI	100,000 addresses
600 x 200 DPI	150,000 addresses
600 x 150 DPI	200,000 addresses

NOTE: These figures can vary depending on the font selected.

To Replace the Inkjet Cartridge:

- Remove the used cartridge from the cartridge holder by raising the latch lever to release the cartridge, and then pull the cartridge up and out of the holder.
- Remove the new inkjet cartridge from its packaging, taking care not to touch the copper contacts, the metal plate, or the gold printhead. Remove the protective tape from the printhead.
- The cartridges are held in place by a lever mounted on the inkjet cartridge holder. Release the lever by raising it vertical.
- With the cartridge's printhead pointing down, slide the cartridge into the holder and push down and toward the contacts in the holder.
- Make sure the cartridge is seated in the holder then close the lever to secure the cartridge in the holder. Do not force the lever into place.
- Repeat the above for the remaining cartridges.

CAUTION

NEVER SHAKE, DROP, OR HIT THE CARTRIDGE AGAINST THE PALM OF YOUR HAND OR ANY OTHER HARD SURFACE. SHAKING THE PRINT CARTRIDGE DOES NOT "MIX" THE INK AND HITTING THE CARTRIDGE AGAINST A HARD SURFACE DOES NOT CLEAR THE NOZZLES BOTH OF THESE ACTIONS ACTUALLY HURT THE PRINT QUALITY BECAUSE THEY ALLOW BUBBLES TO FORM NEAR THE INK FIRING CHAMBERS. THESE BUBBLES PREVENT THE NOZZLES FROM FIRING CAUSING WHITE STREAKS IN THE PRINT IMAGE.

MAINTENANCE

Storage

Short-term storage is defined as less than 2 days or less than 1 day in a hot and dry environment. Long-term storage is defined as more than 2 days or more than 1 day in a hot and dry environment.

Short-term Storage

Leave the cartridge in the Printer for short periods of time, 1 day or less.

The next time that the Printer is used, the printhead may have to be cleaned and purged

Long-term Storage

Place the cartridges in the Cartridge Storage area located at the rear of the printer, or

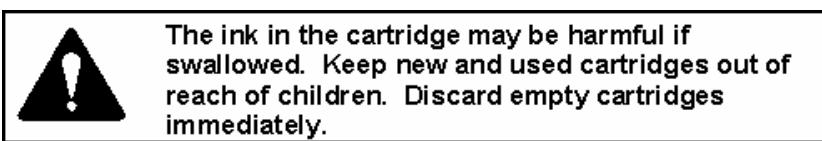
Place the cartridges in a Tupperware container with a damp sponge or towel to maintain humidity and prevent the printhead from drying out.

When the cartridges are ready to be used again, the printhead will need to be cleaned.

Disposal

The cartridge may be disposed of in a normal manner.

If there should be an ink spill, use soap and water to clean up any problem areas. Abrasive soap works well to get the ink off hands.



Cleaning the Printhead

To maintain good print quality it is important that the printheads are kept clean. During the printing process ink spray, paper fibers, and dust can cause a build-up on the printheads. This build-up will eventually degrade the print quality. If you begin to notice problems with the quality of the print, or to just prevent a build-up from occurring with the printhead with a wet fiberless cloth.

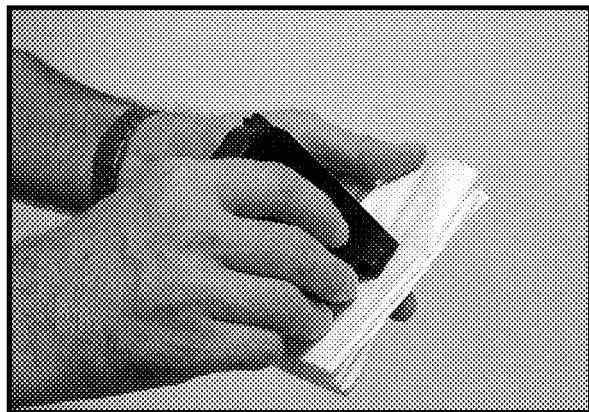
Cloth should be:

- ✓ Soft
- ✓ Fiberless
- ✓ Moist with Water (Distilled is best but tap works)

Cloth should not be:

- ✗ Abrasive
- ✗ Made of small fibers
- ✗ Dry or containing chemical additives

Wipe slowly across the long-axis with the printhead facing down (as shown). Do not apply excessive force, as this could scratch the nozzle area.



Purging the Nozzles

If the printhead sits inactive for a period, ink may dry in the nozzles. Printing may not remove these "ink plugs" from the nozzles. White streaks will then show up in the printed text or graphic. In order to obtain better print quality, these ink plugs need to be forced out or purged. A Purge routine is built into the AstroJet 2600P/2650P/2800P Printer. It can be accessed from the LCD panel on the Printer from the **MENU** key. If this does not solve the problem then proceed as follows:

1. Wipe the printhead with a wet cloth as described in "*Cleaning the Printhead*" above.
2. Perform the Purge routine from the Printer by pressing the **MENU** key momentarily and then the **+** key. Load media and press the **ENTER** key to purge. Repeat if necessary.
3. Wipe the printhead again with a moist cloth.

NOTE: For more information refer to the Troubleshooting Print Heads in Section 5 – Trouble Shooting Guide.

Cleaning

The AstroJet 2600P/2650P/2800P

WARNING

THE ASTROJET 2600P/2650P/2800P PRINTER IS A PRECISION MACHINE THAT SHOULD BE CLEANED REGULARLY TO INSURE MANY YEARS OF SERVICE. BEFORE PERFORMING ANY MAINTENANCE, DISCONNECT THE MACHINE FROM ITS POWER SOURCE!

The AstroJet 2600P/2650P/2800P must be cleaned regularly of accumulated paper dust and ink. Depending on the types of media that are run, paper dust may accumulate within the printer and on the transport. To clean the AstroJet 2600P/2650P/2800P, unplug it from the power receptacle and remove the covers.

The internal areas are best cleaned with a vacuum that has a soft brush attachment to help loosen the dust particles. Take care not to damage the PC Boards or electrical wiring.

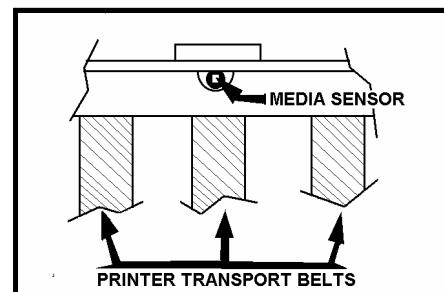
The exterior of the machine may be cleaned with any standard household cleaner, which is non-abrasive and does not contain plastic harming solvents.

CAUTION

NEVER SPRAY OR POUR CLEANERS DIRECTLY ON OR INTO THE ASTROJET 2600P/2650P/2800P PRINTER. EXCESS LIQUID COULD HARM ELECTRONIC PARTS. ALWAYS DAMPEN A RAG WITH THE CLEANER AND APPLY IT TO THE PARTS TO BE CLEANED.

Cleaning the Media Sensor

Periodically check the media sensor located in the print carriage area of the printer section. The sensor should be clean and free of accumulated paper dust. Use a vacuum with a soft brush attachment or dry compressed air to remove the dust.



Notes

Appendix A – AstroJet 2600P/2650P/2800P

Specifications

PRINT TECHNOLOGY	AJ 2600P Inkjet, 6 HP 51645A High Capacity Inkjet Cartridges AJ 2800P Inkjet, 8 HP 51645A High Capacity Inkjet Cartridges
ADDRESS SPEED	26,000/hr - #10 Envelopes
PRINT QUALITY (Dots Per Inch)	High Quality 600 x 600 dpi Standard Quality 600 x 300 dpi Letter Quality 600 x 200 dpi Draft Quality 600 x 150 dpi
IMAGE AREA	AJ 2600P 3" X 17" AJ 2800P 4" X 17"
PRINT ORIENTATION	Normal and Reverse
INK MONITOR	Visible on Display
FONTS	All TrueType fonts available on PC
PRINTS	Prints graphics, logos, and barcodes
MATERIAL SIZE	Length – 5" to 17" Width – 3" to 13.5"
MATERIAL THICKNESS	Up to 3/8"
FEEDER CAPACITY:	Up to 750 #10 envelopes
MEMORY	12 MB
PRINT COLORS	Standard and Versatile Black, Red, Blue, Green, and Yellow
INK	Water based may require drying assistance for coated stock
SOFTWARE	Windows™ Printer Drivers for Windows™ 95, 98, 2000, NT, ME, and XP
DIAGNOSTICS	Resident in firmware
FIRMWARE UPDATE	Flash PROM update.
PC INTERFACE	Centronics Parallel and USB
COUNTERS	One operator resettable job counter, one permanent lifetime counter
DUTY CYCLE	60 million addresses total or 1,000,000 per month over a 5-year life cycle.
DIMENSIONS	25" H x 28" L x 22" W (635 mm H x 711 mm L x 559 mm W)
WEIGHT	80 lbs. (36.4 kg.)
ELECTRICAL	AstroJet 2600P/2650P/2800P 115VAC or AstroJet 2600P/2650P/2800Pe 240VAC, 50/60 Hz
OPTIONS	Conveyor/Stacker Drop Tray, and FlexMail® mailing software

All Specifications Subject To Change Without Notice

Appendix B – Supplies and Optional Hardware

The following supply items and optional hardware are available from your Astro Machine Dealer:

Supplies

Black Inkjet Cartridge	HP 51645A
Fast Drying Black Inkjet Cartridge	HP 6195A
Yellow Inkjet Cartridge	HPC6173A
Red Inkjet Cartridge	HPC6168A
Green Inkjet Cartridge	HPC6169A
Blue Inkjet Cartridge	HPC6170A
Versatile Black	HPC8842A

Optional Hardware

Conveyor / Stacker Available

Drop Tray

Copyright © 2007 **Astro Machine Corp.**
Elk Grove Village, IL 60007
02/27/2007

Part Number: 300-AJ2600P/2650P/2800PSRM Rev. A
